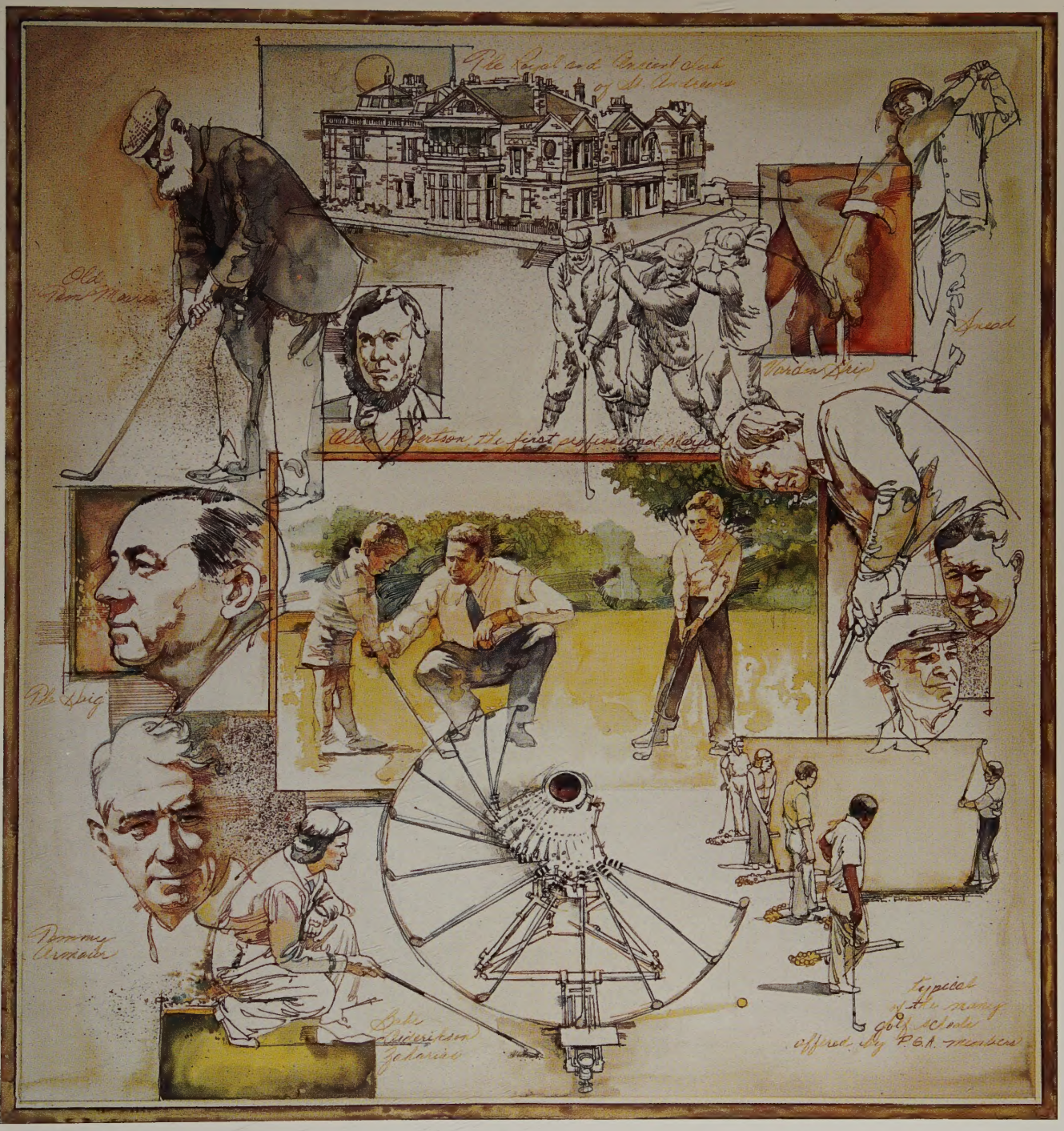
PGA Teaching Manual

The Art and Science of Golf Instruction


The Royal and Ancient Club of St. Andrews
Old Tom Morris
Alex Morrison, the first professional player
Harry Vardon
J. Braid
The Haig
Tommy Armour
Bobby Jones
typical of the many golf schools offered by P.G.A. members

The PGA Teaching Manual

The PGA of America is delighted to have the Tommy Armour Golf Company as the sponsor of the PGA Teaching Manual. Not only was Tommy Armour a brilliant tournament player, he was one of the most successful teachers of golf that the world has known. As a tournament player, he won the Triple Crown of golf: the U.S. Open, the British Open and the PGA Championship.

Tommy was born in Edinburgh, Scotland, and was educated at the University of Edinburgh. He was an officer in the Royal Scots Army during World War I. He won many amateur golf events in Europe, as well as the French Open, before coming to America shortly after the First World War. Two years after becoming a member of the PGA of America in 1925, he won the U.S. Open and Canadian Open.

In 1929, he assumed the golf professional position at the Boca Raton Club, in Florida. There he taught beginners, tournament players and all those in between. He had the unique ability to diagnose and correct faults quickly. This can probably be attributed to the fact he enjoyed teaching. And that is one of the main purposes of this PGA Teaching Manual — to equip teachers of golf with the skills to make their teaching more enjoyable and more effective. Tommy won the PGA Championship in 1930, proving that his teaching did not interfere with his ability to play. His British Open Championship followed in 1931.

We could not have chosen a more distinguished name to be associated with this manual. Tommy Armour was a great player, teacher and gentleman. And the Tommy Armour Golf Company is one of the most respected companies in golf.

Patrick J. Rielly
President, PGA of America

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PGA Teaching Manual

The Art and Science of Golf Instruction

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PGA of America

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Preface

This manual is primarily for the information and use of PGA Members and Apprentices who teach golf. Also, we wish to share it with those teaching in school environments, recreation programs, and with fellow professionals in other countries and golf devotees everywhere who wish to expand their golf knowledge.

Tommy Armour, one of golf's greatest teachers, advises in the introductory quotation that golf is not a simple game, but it should be taught in a simple fashion. Golf teachers would be well-advised to heed this advice. We strongly support in this manual a simple teaching approach.

Unfortunately, adherence to simplicity was difficult in writing a manual this comprehensive. Were the instruction designed to cover only one method of teaching or learning golf, the task would not have been so formidable. The authors sought, however, to deal with many of the conceivable situations the teacher might face — even the unique ones. This text covers more than one approach to golf instruction. Discussions range from teaching the fit to the disabled, from the physical side of golf to the mental, from information dissemination to assimilation, to mention but a small part of the scope.

"You need to understand golf in its total complexity so you can teach it in its utter simplicity."

Tommy Armour, PGA Professional

This material is not meant to dictate a teaching method. It does provide information and advice which might be useful for an organized teaching program, or to train and develop a teaching staff. We hope that some of the insights given on the teaching process will be beneficial. Also, the text has recommendations for standardizing golfing terminology so that professionals, students, and players will all be "speaking the same language." Lastly, the manual includes a rather incisive presentation on the derivation of this grand game of golf —including some advice and information by the "Greats" of golf.

Our sincere appreciation to the talented members of the Teaching Manual Committee, the participating members of the PGA Staff, and especially the author, for their countless hours of work on this project. We and all of these contributors appreciate that despite all the technological, physiological, and psychological advances in space-age golf, "teaching the game" continues to be the foundation of the golfing profession.

PGA Board of Directors

Acknowledgements

A great deal of appreciation is offered to the following people for their help and assistance: to the PGA members who served on the teaching manual committee (see Introduction for listing), plus Tom Addis III, Frank Sluciak, Jerry Mowlds, Mike Herbron, Dr. Jim Suttie, Fred Griffin, Dick Harmon, Tony Morosco, George Lewis, Jerry Tucker, John Schlee, Jim McLean, Jon Reese, Peter Donahue and Jim Surber. Thanks for your contributions goes to Dr. Stan Plagenhoef, Dr. Richard Coop, Dr. Bob Rotella, Dr. Rolla Campbell, Dr. Ralph Mann, Dr. Ken Blanchard, Dr. De De Owens, Dr. David Miller, Dr. Orrin Hunt, Herb Boehm, Mark Wilson, Lloyd Kahn, Anders Janson, Dave Pelz, Frank Thomas, Don Krog, Swing Meyer, Joe Murdoch, Bill Holden, Janet Seagle and Joanne Winter.

We appreciate the help from our fellow golf associations, the USGA and National Golf Foundation for their assistance, also to Achushnet, True Temper, Wilson, The Golf Works, The Chicago Golfer, Ohio Golfer, Svensk Golf and Shelter Publications.

Special recognition and thanks goes to the staff at Golf Digest and Golf World and former publishers Howard Gill and Bill Davis for their invaluable assistance on photographs. We also thank PAR GOLF magazine and International Golf Research of Japan and Bob Wilson of the National Amputee Golf Association, for photos as well as Jeff McBride and Steve Szurlej.

The manual's photographer, Allan Carlisle, for many of the instructional photographs in the text and to his main subjects PGA Professionals Buddy Antonopoulos, Scott Stilwell, David Thompson and Linda Edgely. To Chuck Passerelli for his beautiful art on the cover and chapter fronts and to GRR\Weston Ganoff Marini, including Greg Ganoff, Senior Vice President; Patrick Cowden, Art Director/Designer; Lynn Wheelan, Proofing Editor; Joanne Mack, Typesetting Director. And thanks to the PGA's Henry Thrower, Director of Research and Information Services, who has read this manual more times than anyone, except the author. Thanks to Colonel David L. Daub (retired) for editing the manual and Des Tolhurst for his assistance. Thanks to Joe O'Brien, Ralph Lima, Pat McCarthy, Martha Ferguson and Alicia Bollman from the PGA headquarters for their assistance in producing this manual and to the PGA Officers: Pat Rielly, Dick Smith, Gary Schaal and J.R. Carpenter, as well as to the Executive Board and Jim Awtrey for their enthusiastic support of the project. Special thanks to President Mickey Powell and other members of the PGA Board of Directors in 1985, who approved the proposal for writing this manual.

Each member of the PGA should be most grateful to the Tommy Armour Company and its president Mr. Bob MacNally for the considerable financial resources they provided in making this project possible.

Finally, thanks to my own family for the extreme patience and unselfishness they demonstrated while I borrowed time away from them to complete this important document for golf.

Gary Wiren

Introduction

The objective of golf is simple, but the game of golf is complex. Moving a ball from here to there by propelling it with a club is a task easy to comprehend. But when you explore all that surrounds and affects this undertaking you have quite another matter indeed! The scope of golf's dimension can stretch even the most inquisitive mind. Consider just some of the major elements essential to golf: equipment, psychology, the human anatomy, rules, course architecture, training and practice, agronomy and course management...not to mention the often debated topic of swing technique. This is why teaching the game of golf is a challenge that requires a lifetime of learning. Done effectively, the result rewards both pupil and teacher. The purpose of this book is to help make the teaching/learning environment and experience more productive.

As one would expect, the book deals primarily with instruction but that's far from the whole picture. There are materials and ideas which are totally new, such as in golf terminology. While many books offer glossaries of golf terms, this is the first time an attempt has been made to compile a "Terminology for Teachers of Golf," i.e., a standardized language. Some of golf's widely used terms such as "strong grip" and "weak grip" are replaced with more accurate ones; in other instances golf terms like "semiprivate lesson" and "group lesson" are quantified for the first time; and where in the past several terms have been used to describe the same thing, a preferred selection is now made.

Other new offerings are a pupil screening test to help both teacher and pupil identify physical strengths and weaknesses before instruction gets underway. The teacher is also given numerous suggestions on how to help promote wider interest in instruction and is provided with material that identifies many of the traits of competent instructors. At the close of the manual a serious call is made to all golfers and teachers of golf to identify those elements that make golf an enjoyable experience and to promote the preservation of these elements.

Any attempt to compile a "complete book" on every aspect of teaching golf would be a project ambitious beyond reason. To compile one that identifies and highlights a large number of the elements that constitute "good teaching" is not. This is what the author has attempted to do in this manual.

The author has had considerable assistance and contributions from a highly select committee composed of some of the PGA of America's most respected teachers: Kent Cayce, Chuck Cook, Manuel de la Torre, Dick Farley, John Gerring, Hubby Habjan, Jack Lumpkin, Bunny Mason, Eddie Merrins, Ed Oldfield, Pat Rielly, Paul Runyan, Craig Shankland, Bill Strausbaugh, Guy Wimberly, and one of the game's great teaching professionals that we tragically lost, Davis Love. It was an honor for me to serve with all of them.

Gary Wiren
PGA member and author

"I've taught some of the greatest golfers a few of the polishing details that have helped them get as near to perfection as is possible. That has been comparatively easy because they have an aptitude for learning, sound basic ability and fine physical qualifications.

But the utmost demands on my own capabilities as an instructor have been made by those who are shooting the courses in three figures, discovering what could be their best games and teaching them to preform to the limit of their capacities."

Tommy Armour

PGA Teaching Manual

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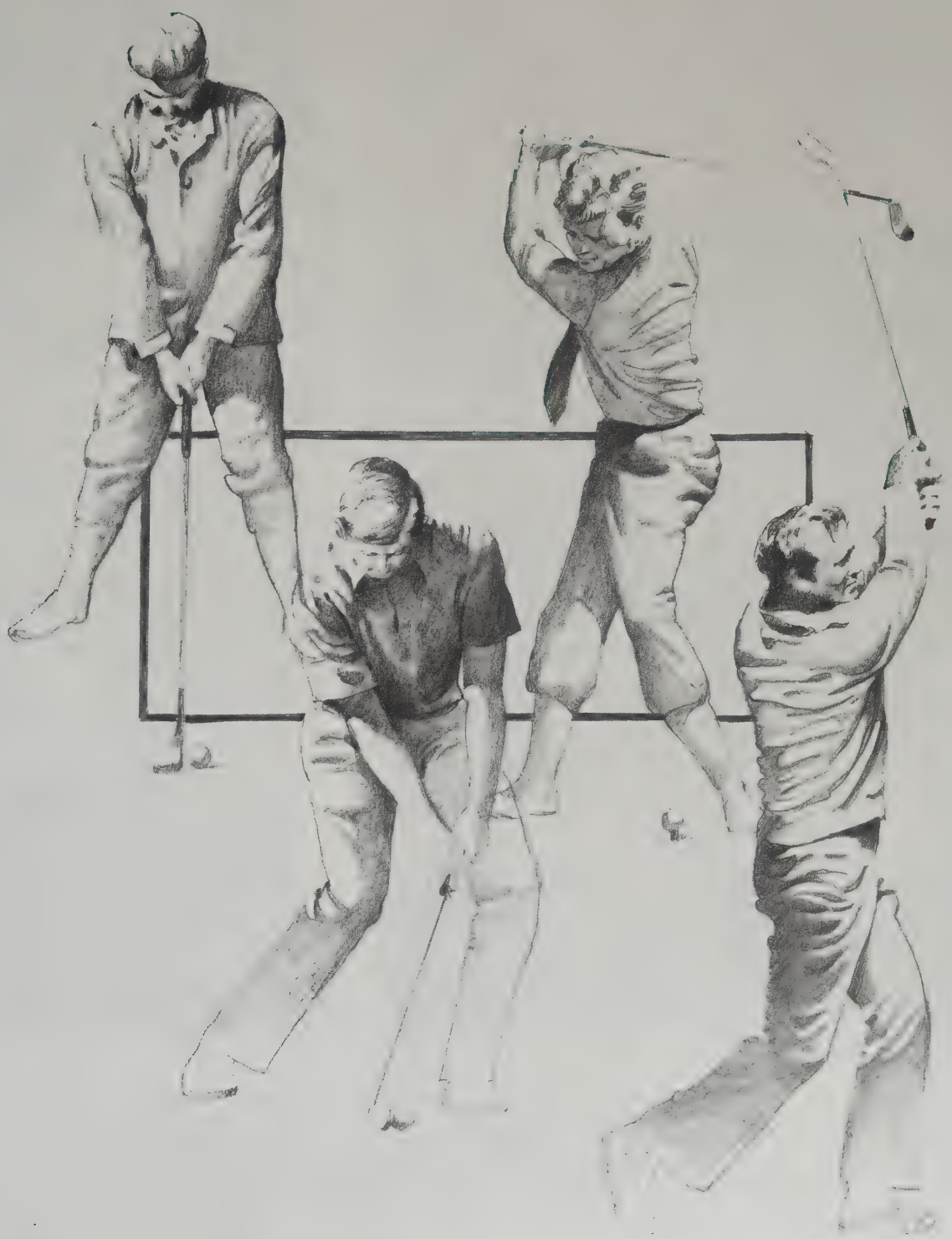
CHAPTER 1

History and Evolution of Golf and Golf Technique



CHAPTER 1

History and Evolution of Golf and Golf Technique

In the Beginning

Where and how the game of golf originated we really don't know. It probably depends on one's definition of terms. If one is talking simply about hitting a ball to a target with a stick, then there are several forerunners to golf, even from its earliest days. The Scots claim golf as "their game" but there have been challenges to that claim.

The Dutch appear to have the closest ties with golf. As early as the 13th Century their literature contained references to "golf-like" games with medieval names such as "spel mitten colve" (play with club), "den bal mitta calven te slaen" (to hit the ball with the club) or "kolven" (club) for short. The Dutch master painters have left over 450 paintings and sketches of participants with club and ball playing a game in Holland most certainly resembling golf. (f 1-1) (Illus 1-1)

Commerce between Scotland and Holland over the North Sea route flourished from the beginning of the Middle Ages. However, unfavorable winds or bad weather would frequently result in sailors and traders being "grounded" and spending a generous amount of time in each other's respective country. What better way to enjoy their leisure than participate in the favorite local sports. In a few instances, some of the players shown in the Dutch pictures wore kilts indicating they were Scottish visitors. (Illus 1-2) If one compares the written rather than artistic record, he'd see the first written word of golf in Scotland was James' I edict of 1457 declaring golf

Illus 1-1
Engraving by Jan Luyken of Holland (1649-1712) entitled "The Club."
from Early Golf *by van Hengel*

f 1-1 *Dutch golf historian. Steven J.H. van Hengel spent 30 years researching early golf-like games of the lowlands. His work culminated in the book* Early Golf *published in 1982.*

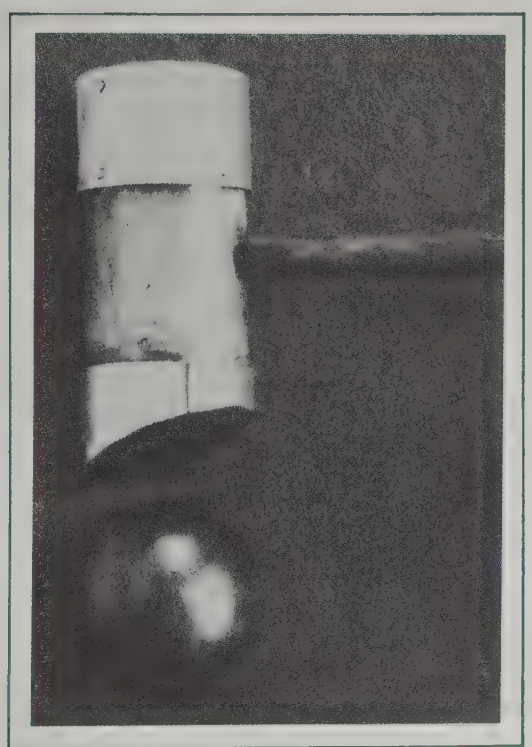
Illus 1-2
The "golfer" preparing to hit is wearing a kilt, yet is obviously playing in Holland.
(From Van de Velde painting of 1668)

Illus 1-3
Golf in Scotland began as an East Coast game in the harbor towns across from Holland. Golf is believed to have been played in these localities before 1650.
from Golf in the Making
by Ian Henderson and David Stirk

illegal. In Holland an earlier written record is 1297. It described a cross-country version of a game with four players to a side, playing four holes with the objective being to strike the doors of selected buildings along the way with the ball, the equivalent of "holing out." A barrel of beer went to the victors, indicating that celebrating at the "19th hole" is a long-standing tradition.

Scots and Dutch jointly attended festivals, fairs and large market gatherings, where among the items sold were leather-covered balls stuffed with feathers or cow hair, two early style golf balls, the other being of wood. It is a matter of record that the Dutch provided the Scots with feathery balls for their golf up until the middle 1600s, at which time a ballmaker was appointed by the Scottish king to better balance the trade deficit because feathery golf balls were expensive. Finally, it is also a fact that golf in Scotland was largely an East Coast game, played in the very port towns that harbored the vessels that traded with the Dutch. (Illus 1-3) The connection is obvious.

One might surmise from this information that a strong case could be made for Holland being the true founder of golf. But looking beyond the Dutch border, history records Belgians played a similar stick and ball game called "chole," the French "jeu-de-mail" or "pall mall," which came from Italy. (Illus 1-4) But these were one-club contests, with some of those singular implements being used to perform more than one type of shot. (Illus 1-5)



Illus 1-4
Mallet and ball used for the game of Mail. The flat side was used for driving and putting, the angled side for shots requiring loft.
from Early Golf *by van Hengel*

Illus 1-5
This club was used in the Belgian game of chole. Like the mallet used in the game of Mail, it had two lofts used for striking the ball. The shape dates from the middle ages.
from Early Golf *by van Hengel*

The origins of all these games very probably stemmed from another stick and ball game played by occupying soldiers of the Roman legions when that empire covered most of Europe. "Paganica" was the name of the game, meaning "leather sphere containing feathers." Is it mere coincidence that the same type ball was played by the Dutch and later by golfers in Scotland up to the 1850s? (Illus 1-6)

An apocryphal story suggesting that golf was invented by a shepherd who found both challenge and amusement in striking a pebble to a selected destination may not be so fanciful, although the shepherd probably wasn't a Scot. Evidence the fact that in Western Germany, "the hunting laws of 1338" stated that the grazing rights for local shepherds could be extended into the forest there as far as they could hit a pebble with one stroke. The length of these drives was marked by permanent stones, the "Hirtensteine" (shepherd's stones). Some of these can still be found today near Frankfort Golf Club. (The long-hitter even had some advantage in the early days.) Finally, a very interesting old print has recently been published in Japan showing a game that certainly looks like golf being played in China during the Ming dynasty, 1368 to 1644. Again, though resembling golf, it, in fact, was not. (Illus 1-7)

Who invented golf? Was it created by the Dutch, French, Belgians, Germans, Romans, Chinese, or some other nation? Certainly all had similar games which may have contributed to the eventual development of the game. (Illus 1-8) But golf as we know it, played with a variety of clubs, not just one, over an extended area, using a small ball and with the object being to stroke it into a hole, is a format not only developed by the Scots but propagated by them around the world. They deserve the credit for the game as it is played today. (Illus 1-9) (For additional information see Appendices 1-A and 1-B.)

Illus 1-6
A "feathery" golf ball from Scotland played until the middle 1800s. Earlier versions were also stuffed with cow hair or made of wood.

"Remember, this game was invented by the same people who think good music comes from bagpipes."

(Sign on Chicago area golf course between an extremely difficult green and the next tee).

Illus 1-7
Ladies playing a "golf-like" game in China during Ming dynasty.
from Sports in Ancient China

Golf's First Boom In Scotland

Illus 1-8
A sketch of a Chilean Indian boy, taken from Charles Darwin's book of the exploration of South America c. 1835.

During the last half of the 18th century golf had a great growth spurt in Scotland, despite the fact that daily life was demanding in this rugged, spartan country. But the Scottish people are tough, industrious and adventuresome. Many Scots left their country to make a living in other lands and took golf, their sport-religion, with them. Those who came to the United States were no exception.

There is considerable evidence that golf was played at several locations in the United States prior to 1888, which is traditionally given as the year golf originated here. The St. Andrew's Golf Club of Yonkers, N.Y., was founded in that year and has been in continuous existence since then. But if 1888 is the year in which golf supposedly originated in the U.S.A., what were they doing in Charleston, S.C., in 1743 when a shipment of ninety-six clubs and four hundred and thirty-two balls came from Leith, Scotland? Why then was there a golf club formed there in 1786 and another in 1795 in Savannah, Georgia? And how does one explain the ad that ran in the Rivington Royal Gazette (Albany, N.Y.) April 21, 1779, which offered golf clubs and balls for sale? The answer, of course, is that someone was playing golf in these locales. Old newspaper clippings, letters and magazine articles exist which describe similar activity prior to 1888 in all of the following states: Massachusetts, Iowa, Nebraska, Kentucky, Pennsylvania, West Virginia, Florida, North Dakota, California, Colorado and Texas. Yes, the Scots liked their golf well enough to introduce it wherever they went.

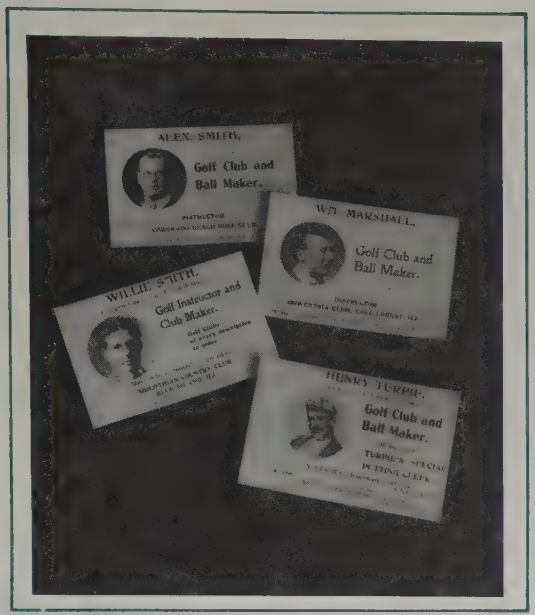
Illus 1-9
The game of golf as we know it today grew out of the "links land" of Scotland.

The Transplanted Professionals

"Old" Willie Dunn was the first of the Scottish professionals to serve as a golfing "pilgrim missionary." He went south of the River Tweed to Blackheath outside of London in 1851, later to be joined by his twin brother Jamie. Fittingly, Willie's son, Willie Dunn Jr., was one of the first golf professionals brought to the United States to teach, play, make clubs and build courses. Young Dunn, an early professional at Shinnecock Hills, saw great promise for golf in this new land and stayed to design over 15 courses, among them Jekyll Island, Baltimore Country Club, Scarsdale Country Club, and Philadelphia Country Club. He also designed and made golf clubs, including the now very collectible one-piece driver, and developed the first golf shop in this country at Shinnecock. He personally was responsible for bringing to the U.S. some twenty young Scottish professionals by generously assisting in their passage and early subsistence. Herb Graffis relates in *History Of The PGA,* "The Scottish founding fathers of professional golf in the United States disproved the legend that their countrymen are tighter than a warped door. The contrary was generally true — they were inclined to be too generous because they had little experience in handling money." Similar scenarios developed as names like Jim and Dave Foulis, Fred Herd, Harry Turpie, Alex Taylor, William Yeomans, Dave Bell, Jock Hutchison, Bob Simpson and Laurie Auchterlonie were appointed to golf courses in the Chicago area. In New York, William Gourlay, Robert White, Alex Pirie, Willie Anderson, Gil Nicholls, and Jack Mackie were among the Scots who contributed to the game. Other "apostles of golf" like James and Stewart Maiden, M.J. Brady, William Hoare, George Sargent, J.R. Thompson, Charles Adams and many others were located in New England, the South, the Midwest and California. They were largely a gathering of Scots with a few English joining them. (Illus 1-10)

Illus 1-10
A group of early professionals and caddies in America, including three-time U.S. Open Champ Willie Anderson, shown with his arm around another Open Champ, Alex Smith.

Photo courtesy USGA



Illus 1-11
Early Scottish and English professionals advertised their talents as teachers, players and manufacturers.

Some of the new arrivals from famous golfing families in Scotland like the Dunns, Smiths, Forgans and Gourlays were already expert players, teachers and clubmakers. (Illus 1-11) But others were brick masons, carpenters, fishermen, blacksmiths or sailors by trade when they left Scotland. They were golf professionals when they arrived in the United States. Playing the game was their birthright. Add the marvelous accent and it gave them credibility in a country hungry for golf and as yet uninitiated to its vagaries. As a group these men were honest, hard-working, proud and unquestionably forthright. They had a love for golf that was greatly instrumental in the rapid spread of the game in this country. Evidence of this is that in 1888 American golf was played on a three-hole cow pasture in Yonkers, N.Y. But by 1900 the country could boast of 1,000 courses!

The golfing styles of these immigrant Scot-English professionals were for the most part very individual. What they taught was what worked for them at home, in the British Isles. Several factors influenced choice of style: (1) Course architecture and agronomy, (2) Weather and clothing, (3) Equipment and (4) Styles of the leading players of the day. (f 1-2)

f 1-2 One could generally recognize a player's region of the country by his swing. The St. Andrew's swing was long and flowing; Hoylake was an open stance with the ball toward the right foot; North Berwick was with the ball played forward.

Course Architecture and Agronomy

God was golf's first architect, man was his assistant. The earliest courses that hugged the coastline of Scotland were known as "links" because they "linked" the arable land to the sea. Nature, using wind and water as its machinery, shaped the dunes, knolls, ridges and hollows. (Illus 1-12)

Illus 1-12
A true links course, shaped by nature more than by man.

This terrain was ideal for golf as it provided open expanses inhabited only by birds, rabbits and foxes. It was adorned by gorse (that unmanageable plant that will tear the club from a player's hands), heather and broom. Add sand, mixtures of wild fescue, marram, bent and meadow grass and you had the "links." Links land was productive for little other than walking the dog, for laying out wash to dry, and for sports, particularly golf. For course construction there was no earth-moving equipment to create elevated greens or to place water hazards and bunkers in the direct line of carry for an approach shot to a green. Bunkers were in abundance, appearing as gaping chasms which often bordered the rough, or demonically placed in the fairways and at greenside. Yet, they did not generally block the entrance to the green. This influenced shot selection, encouraging the use of the run-up shot instead of pitches and the low hook for full shots, rather than a high trajectory style.

Agronomy was not the science it is today. At fabled St. Andrews, "Old Tom" Morris was "keeper of the greens" in addition to his duties as teacher, clubmaker, ballmaker and player. (Illus 1-13) "Keeper of the greens" meant supervising or personally being available for cutting new cups, tending the greens and hoping for nature's cooperation which provided the only watering system... rain. Fairway irrigation was still a century away, so the ground was hard and the low-flying running ball was the shot to hit. Under those conditions and with greens equally hard, today's wedge would be virtually useless. A player had to learn to pitch and run the ball.

Some of the same factors that molded the techniques of our Scottish pioneer players still exert their influence today. Course design is becoming more penal. There is far more water; housing developments surround most new courses with their accompanying out-of-bounds stakes; more rough and natural grass areas are a trend; greens are elevated, undulating and heavily protected by bunkers; and modern earth-moving equipment can make uneven lies from the flattest swamp or desert. (Illus 1-14) We are returning to some features that were predominant in the old style links-type courses.

Illus 1-13
Tom Morris, St. Andrews' professional, eulogized as "a man who never had an enemy."

Illus 1-14
Modern earth-moving equipment can provide any type shaping desired. Today golf architects often move millions of cubic yards of earth to create a golf setting.
from 100 Greatest Golf Courses

Illus 1-15
Golf clothing of the late 1800s was more for fashion than function.

Illus 1-16
Because the early clubs had so much shaft torque, the most effective swing technique employed a long, gradually accelerating sweeping motion.
from The Complete Golfer

Unfortunately many of the most talked about modern courses are too difficult for the average amateur player to find enjoyable on a regular basis. If the game is to continue its popularity, golfers must enjoy the experience. Shooting big numbers on courses too hard for all but the most accomplished players is not conducive to "having a good time."

Course conditioning today is vastly improved over the days of knickers and Norfolk jackets. Good lies in the fairway are the rule, not the exception. Putting surfaces are truer and the Stimpmeter is creating a desire by some to want them even faster — a trend not necessarily advisable. All of these influence playing style. Faster greens promote arm and shoulder putting; rough and out-of-bounds discourage trying for the extra distance that comes from the hooking tee shot; elevated and protected greens call for higher trajectory irons and more frequent use of the sand wedge for pitching.

Weather And Clothing

Links courses in coastal towns on the North Sea are accustomed to more than a light breeze. Evidence is the wooden club of the 1800s known as the "driving putter," used for keeping the ball knee-high off the ground on very windy days. The need for such a club is clearly appreciated if one considers the story of Maitland Dougall of St. Andrews who actually added lead to his ball on a competition day when a near gale was blowing, then came in the winner. In conditions such as these the golfer most certainly was at an advantage by keeping his shots low.

The weather in Scotland is not only windy, but a chill can blow in off the sea during July which makes one think it's December. Thus, heavy clothing was a part of the proper golfing costume, but certainly a disadvantage for the swing. Getting a wide extension of the arms to create "high hands" in the backswing was next to impossible with three layers of wool and tweed. (Illus 1-15) It was far easier for the player to bend the left arm and turn the whole body away from the ball. One popular style was for the club to point across the target line at the top of the backswing and come to rest close to the neck before starting down, then to use a "sweeping style" swing coming forward. (Illus 1-16)

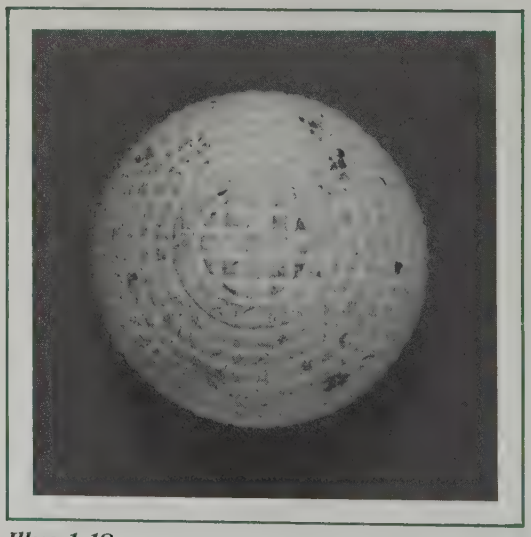
Modern professional golf is a fair-weather game. The players follow the sun. Of course they experience heavy wind and occasional rain, but these conditions are the exception. One of the last events on the present PGA TOUR is played on the Island of Maui in Hawaii. Were the Tour to play there every week for two years, the players' swings would certainly change to combat the wind. The point is, conditions make a difference in the development of a player's technique or style. Playing consistently in favorable weather unencumbered with heavy clothing and free from buffeting winds promotes a freer swing, a wider arc and an aggressive style.

The business suit of the day for the modern professional is a comfortable, non-binding, short-sleeved golf shirt and slacks that can expand and contract to accommodate body movement. When a player can fully wind and extend his arms there is less need to rely on the hands for power, so the hands need only "transmit" the power rather than create it.

Equipment

The construction of the tools used to accomplish a task influences how they are handled. Golf balls and clubs are no different. In feather ball days before 1850 a set of clubs was composed primarily of woods — a play club (driver), a variety of wooden spoons, i.e., long spoon, mid spoon, short spoon and baffing spoon plus a wooden putter and two irons (a small-headed track iron for getting the ball out of wagon ruts or animal tracks, and another large-faced, less-lofted iron for scraping the ball from tight lies). (Illus 1-17) The shafts of the early clubs were first made of hazel and later of ash; both tended to be very whippy. This whippiness greatly influenced how rapidly the player could accelerate the club and still control the direction of the face. With a long-nosed whippy shaft wood, the torque was difficult to manage, particularly if one tried to change direction rapidly. To minimize torque, the ball was swept from the tee with a body and arm motion more than it was hit with the hands. This is one of the reasons why backswings became so long — a very gradual forward acceleration required it to be that way. The long backswing was aided by placing the left foot closer to the target line than the right foot in what today we'd call an extremely "closed" stance.

Illus 1-17
A set of clubs from the middle 1800s. Only two irons, one for scraping the ball from tight or sand lies and one for extracting the ball from ruts.



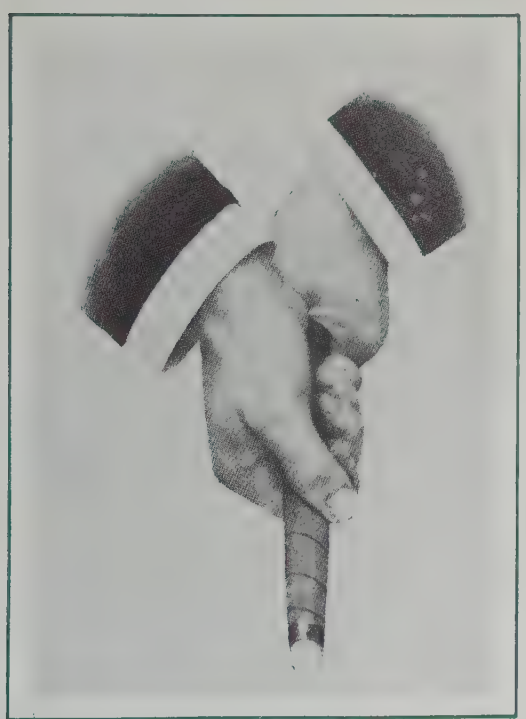
Illus 1-18
The gutta-percha golf ball revolutionized the game by helping make it more affordable for the masses.

Feathery to "Guttie"

The feather ball gave way to the gutta-percha in the 1850s, economics being one of the overriding factors. A ballmaker laboring ten hours per day could only produce 4 to 5 feather balls, causing them to be very expensive. Thus, golf basically became a game for the wealthy. The "guttie" ball, which could be mass manufactured in molds, changed that. (Illus 1-18) The less expensive "guttie" was a great boon to the spread of the game, but the player found that a misshit shot with this much harder ball produced an uncomfortable shock to the hands. This ball also distressed the face of the woods creating the need for insert materials because the faces couldn't last under the beating from the harder ball. But the shock remained. Clubmakers sought to alleviate this discomfort by padding the grips with wool underlisting, thus making the grips larger. Larger grips required larger hands or a grip style that grasped the club more in the palms than the fingers. Because the grips were too large for most people to grip in the fingers, the palm grip became widely taught. (Illus 1-19)

In the 1850s, concurrent with the decline of the feather ball, hickory shafts from Tennessee U.S.A. were introduced in St. Andrews by the clubmaking firm of Forgan & Sons. This was a shaft that was "steelier," had less whip, and allowed the player to hit rather than sweep the ball from the tee. The long-nosed, splice-headed clubs eventually became obsolete (shortly after 1885) because their toe-to-heel length caused too much torque when force from the hands was applied. Thus, a more compact clubhead evolved.

During the 1890s Mr. Henry Lamb proved to golf skeptics that a convex, rather than a concave or even straight face, resulted in longer, more accurate shots with a wood club. His driver, made by professional Bob Simpson, was called "the bulger."



Illus 1-19
Grasping the club in the palms was a necessity from 1850-1900 since the grips were "built up" to cushion the shock from the gutta-percha ball.

The "guttie" ball, though then in general use, presented a problem. It was difficult to get sufficient height on the shots. Players found that if they moved closer to the ball and made a more upright swing, the ball would fly higher. The more upright swing was aided by making shorter clubs. When comparing a play club (driver) from the early 1800s with a Vardon driver of the late 1890s, the Vardon wood is three inches shorter. In addition to moving closer to the ball, players changed their stance. Many players, like the great triumvirate Harry Vardon, James Braid and J.H. Taylor, (Illus 1-20) played from an open stance on all shots, which also assisted in getting the ball "up." This trio amassed 16 of 20 British Open titles between 1894 and 1914 with Vardon garnering six. His effortless style was unquestionably superior to his predecessors and was the model for the next generation of players. (Illus 1-21, 1-22) Backswings became shorter with some players not even reaching parallel with a driver, a position that would have been most unorthodox fifty years earlier. The shorter swing also contributed to the tendency to use the hands and forearms for power, a style that would have been most improbable had the firmer hickory not replaced the whippy ash and hazel shafts. Tight, bulky jackets still made it difficult to fully extend the arms, so a bent left arm at the top of the swing continued to be common among most of the leading players.

Illus 1-20
J.H. Taylor, British Open Champion, shown playing from an extremely open stance which suited the "guttie" ball.
from Golf Faults Illustrated

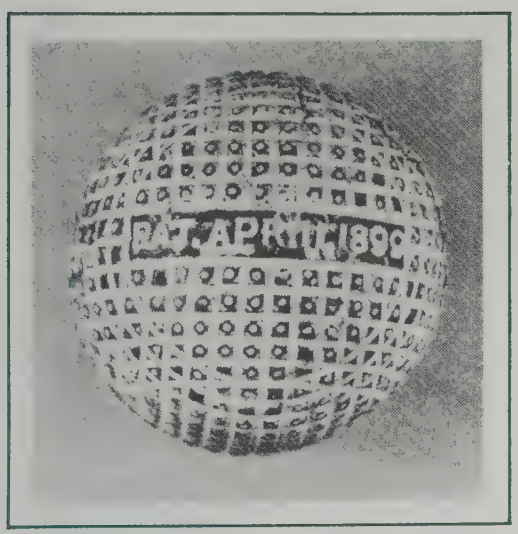
Illus 1-21
Harry Vardon, one of the game's great players, demonstrating his effortless swing (top of the backswing).
from The Complete Golfer

Illus 1-22
Harry Vardon (finish of the swing).
from The Complete Golfer

The Haskell's Effect

Another evolution in equipment that further influenced playing styles was Coburn Haskell's ball patented in 1899. (Illus 1-23) It was a three-piece ball with a center core around which was wound rubber thread, then covered with a molded gutta-percha material. It took a few years of experimenting to develop the appropriate core, the best method of winding the rubber thread and the most effective cover material. The cores started small in size, the covers thick. Eventually the cores became larger and the covers thinner as that combination provided a truer flight. Everything imaginable was tried in the ball's center: mercury, human hair, soap, blood, loose steel balls, compressed air, wood, treacle, glycerine, castor oil, honey, pulverized metal, earth, rubber, cork, celluloid and what turned out best, water. Eventually water or glycerine was injected into a rubber circular sac, then frozen so the winding process would not distort the core's shape. The original idea was tested on baby bottle nipples. Once the major imperfections were eliminated, the new Haskell ball proved considerably more forgiving than the "guttie," it flew higher, it shocked less when misshit, but most important was the fact that it went 25-30 yards farther. The "guttie" was obsolete by 1904.

With the Haskell, it was soon discovered that balata for a cover material created a softer feel off the clubface, which permitted the padding under grips to be reduced, allowing a corresponding reduction in the size of the grip. During this transition period the modern method of gripping the club evolved, more in the fingers than palms. The Vardon overlapping grip, which is universally accepted today, was not really originated by Vardon. Initially, it was used by Mr. F.A. Fairlie of North Berwick, then copied by the first British PGA president, J.H. Taylor, who was Harry Vardon's fiercest competitor. Vardon took notice, tried it and liked it. Being the most famous golfer of his day, he was accorded the honor of the grip's invention.



Illus 1-23
The three-piece rubber core Haskell ball, because of its greater distance, made many great courses obsolete or necessitated that they be lengthened.
from Encyclopedia of Golf Collectibles

With the grip more in the fingers, the hands were rotated inward toward the thumbs which favored a stronger left-hand position, showing three knuckles. (Illus 1-24) This caused most of the leading players to cup the left wrist more at address and at the top of the swing than professionals do today. Because the grip now ran diagonally across the left hand, the player tended to be less firm at the top, even to the point of slightly opening up the last three fingers of the left hand. Some noted professionals, including Vardon, taught that the gripping emphasis should be between the thumb and finger of each hand, claiming that these were the control centers. Keep in mind that what is being described here represents trends. There were a few players in the early 1900s who had elements of a much more modern swing, but they were a decided minority.

One more interesting sidelight to the Haskell ball was that it compressed more than its predecessors when struck and therefore stayed on the clubface longer. This created more backspin and consequently more height. At the turn of the century the average depth of a wood clubface was about 1-3/16 inches. This new response from the ball, coupled with the shallow-faced clubs then in use, produced skied shots. Accordingly, wood clubs and irons soon began to feature deeper faces. Today's "Bomber" face driver can be a staggering 2¼ inches deep compared to Allan Robertson's 15/16 of an inch in his "play club" of the 1840s. (Illus 1-25)

Illus 1-24
The strongly rotated "closed-face position" of the left-hand grip which was popular during the first half of the 20th Century.

A Shift Back

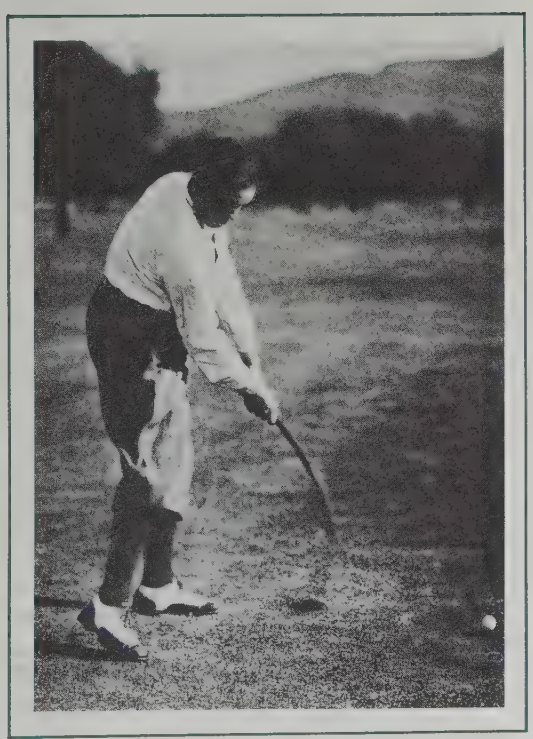
With a higher-flying ball, the pendulum swung back to a closed stance for long shots, but not as exaggerated as that used by the early feathery player. The new, slightly closed set-up allowed players to again have a longer backswing so that the club frequently passed parallel at the top on a driver shot. This was true primarily of players in this country from the 1920s through the 1950s. Not all of the top players adopted the closed stance and long backswing but those who did, like the great Bobby Jones, (Illus 1-26) had an influence on millions of others.

Illus 1-25
The contrast in face depth between a feather ball era play club and a modern "bomber face" driver is extreme.

The Introduction of Steel

It was during the end of Jones' competitive career that the next great equipment advance occurred, and what a change it made! Steel shafts were legalized by the USGA for competition in 1925 and by the Royal & Ancient in 1931. The performance of steel may have been no better at the time but the need for change was critical because the hickory forests were being depleted. Functional steel shafts had been around for longer than most people realize. A patent had been taken out for a solid steel shaft in 1894 and a usable set made then still exists. The Lard patent steel shaft with holes punched in it to lighten its weight and give it some degree of flex was patented in 1914. The drawn tubular version in use today was to come later. Steel reduced torque — less torque meant one could swing harder at the ball and still maintain clubface control. The USGA's fear that the steel shaft would make the ball go farther, thus forcing courses to be lengthened, was not unfounded. That's exactly what happened!

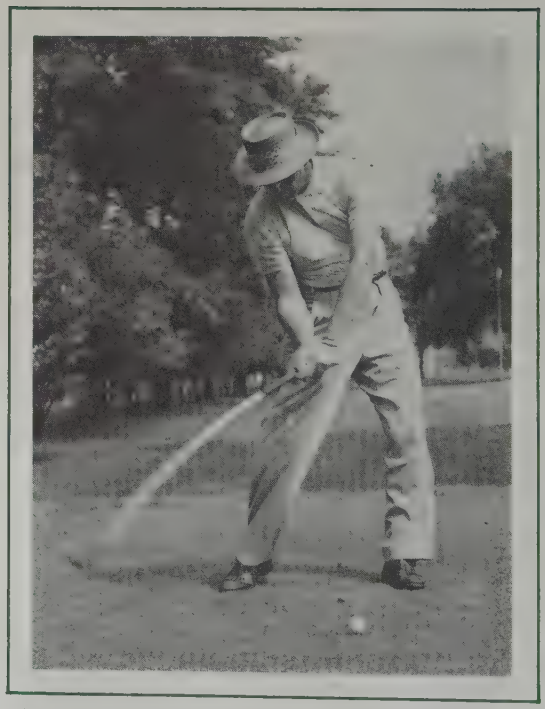
There have been many innovations in golf equipment over the past half century: different materials for shafts, metal woods and graphite heads for irons and woods, frequency matching of shafts, redistribution of weight in irons and putters to provide perimeter weighting, improvements in aerodynamics and materials for balls, and production of continuous sets of iron woods or wood irons. All have contributed to making the game easier, but none has had the significant influence on the swing styles of leading players as did the change in shafts from hickory to steel.



Illus 1-26
Bobby Jones had a great influence on the teaching and playing style of American golf.
from The Bobby Jones Story

The new shaft caused players of that era, the Hogans, Sneads, Nelsons and others, to modify the hickory swing that they grew up with as caddies. Snead's more accurately was not a "hickory swing" but a "swamp maple swing." The legendary story of Sam carving out his own first wood club from a swamp maple is fact, not fiction. Snead's swing, which has some resemblance to that of Jones with its impeccable rhythm and slightly inside-to-out loop, could work with a rubber hose or a sledge hammer. (Illus 1-27) Hogan and Nelson both fought a hook with the steel shaft. After a recommendation from Henry Picard to learn to "slice the ball," Hogan adjusted his left wrist to a cupped position at the top of the swing, (Illus 1-28) thereby opening the clubface, and closing the door to inconsistency in his game. The low hot hook that he'd grown up with was gone and the controlled Hogan fades became legend. Although naturally right-handed, Hogan began his golf as a "left-hander," because the original club given to him was left-handed. According to Jimmy Demaret, Ted Longworth, the pro at Glen Garden Country Club in Fort Worth where Hogan caddied as a youngster, convinced Ben to switch over to the right side. An equally reliable source says that the real story is that a tough caddie, older and bigger than Ben, didn't like the fact Hogan was swinging left-handed and told him if he ever caught him doing it again he'd "kick the hell out of him." It was apparently a convincing argument.

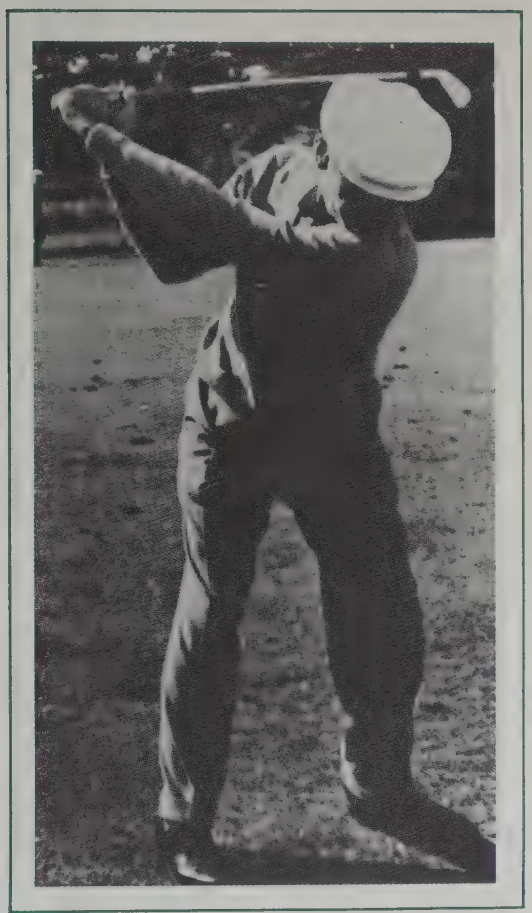
Nelson, also a product of the same caddy yard at Glen Garden with Hogan, worked the hook out in a different way. Early in his career he was employed as an assistant in Galveston, Texas, where it is traditionally very windy. During practice sessions he tried keeping the ball low to control it, while at the same time not hooking. By sitting deeper in his knees during the weight shift toward the target, and making the back of his left hand face the target longer, he solved both problems. His style was completely unorthodox at the time, upright, flat wrist throughout the swing and overly bent knees at impact. (Illus 1-29) But his style helped lead the transition of the golf swing from the classical era into the modern era.



Illus 1-27
One of the game's greatest athletes, Sam Snead, may have made more beautiful in-balance swings over a lifetime than anyone in golf's history.

The Star Players

Historically, golf has presented its brightest stars in clusters of three. The first triumvirate of greats, Vardon, Braid and Taylor, dominated the game on both sides of 1900; from the 1920s it was Hagen, Sarazen and Jones. Beginning in the 1940s, Nelson, Snead and Hogan; finally, the most recent, from the 1960s, Palmer, Nicklaus and Player. There were certainly other names with impressive playing records, in particular foreign players like Henry Cotton, Peter Thompson, Bobby Locke, Roberto DeVicenzo, and Americans Cary Middlecoff, Lloyd Mangrum, Jimmy Demaret, Tom Watson and Billy Casper. Nevertheless, the groups of three seem to stand out. In each era there has been a lull or regrouping between the formation of such trios. If history repeats itself, the next triumvirate would be forming in the early 1990s to dominate until the beginning of the 21st century. If current trends continue it would be a very international group.



Illus 1-28
Hogan's cupped left wrist at the top of the backswing allowed him to better control the ball and not fight the hook.
from Golf With Your Hands

Illus 1-29
The great Byron Nelson using what at the time was considered an unorthodox "sitting motion" at the start of his forward swing. It was a model for later players.
from Byron Nelson's Winning Golf

The Ladies' Role

One can probably assume that women participated in the games that were forerunners to golf as well as early golf itself. The first written record of a woman playing the game of golf as we know it is interestingly a royal example. It is documented that in 1567 Mary Queen of Scots was seen playing golf too soon after the death of her husband, Lord Darnley. This cast a shadow on her character and helped lead to her demise. No further record of ladies at such play appeared for almost two hundred years, although most certainly there was activity. During the 1700s the "fisher lassies" of Musselburgh who could do the work of men, played "men's games" as well, including golf. The first ladies' club appeared in 1867, and by 1886 had attracted 500 members. Appropriately, it was named the St. Andrews Ladies' Golf Club.

It was popular at this time for the ladies to have their own courses which were considerably scaled down in length. Contributing to the need for this practice was the fact that the female golf costume was not conducive to the body positions necessary for long hitting. This was soon to change. With the formation of the L.G.U. (Ladies' Golf Union) in Britain in 1893, women's golf attire and playing standard made a giant step forward. The practice of separate courses for women diminished as they became part of the regular club, to include joining the men in mixed play.

Lady Margaret Scott won the first three British L.G.U. crowns by outclassing the field with scores in the 80s. (Illus 1-30) England later produced one of the greatest women players of all time, Joyce Wethered. Her brother, Roger, was the Amateur Champion and a Walker Cupper. Yet, according to the family, Roger was but 2 to 7 strokes better than sister Joyce *from the same tees,* depending on the type course.

In the United States the first women's championship was conducted in 1895 by the USGA at Meadowbrook on Long Island. It was won by Mrs. Charles Brown with a not-so-impressive 132 for eighteen holes. But that standard, too, was soon to change as women players like Beatrix Hoyt, the Curtis sisters — Margaret and Harriet, Dorothy Campbell Hurd, Glenna Collett Vare, Virginia Van Wie and Helen Hicks won national titles and competed favorably overseas. The women competitors played largely as amateurs until 1948 when the LPGA was formed, led by two incomparable dynamos, Patty Berg and Mildred "Babe" Didrikson Zaharias. (f 1-3) (Illus 1-31, 1-32) It didn't take long for the women's circuit to attract many outstanding women players: Betsy Rawls, Louise Suggs and the lady who may have had the best golf swing of all-time, Mickey Wright. Since then, Kathy Whitworth has become the most prolific winner in LPGA history, while she, Joanne Carner and Nancy Lopez Knight have become recent female additions to the World Golf Hall of Fame. (Illus 1-33)

Illus 1-30
The first female "immortal" golfer, Lady Margaret Scott, in the typical clothing of the late 1800s.
from A Pictorial History Of Golf

Illus 1-31
The irrepressible Patty Berg, the first of the women professionals and golf's great ambassador. (See Appendix 1-C)

f 1-3 Patty Berg turned professional in 1940, prior to the LPGA's formation.

f 1-4 Harry Vardon in his prime played wooden-shafted men's irons but ladies' woods.

Illus 1-32
"Babe" Zaharias attracted crowds wherever she performed because she knew not only how to play golf but also how to give the people a great show.

Illus 1-33
Nancy Lopez's presence provided the LPGA Tour with a shining star, a great role model and gallery draw, liked and admired by everyone.

Golf equipment changes have helped women to find greater enjoyment in the game. The Haskell ball was easier to hit and traveled a greater distance; clothing became more appropriate for the action necessary to produce an effective swing; steel shafts became available and being lighter than wood shafts, were easier for women to handle. (f 1-4)

Women golfers struggled for equality and sometimes even opportunity at courses which were "Eveless Edens." This, despite their contributions to the game. The ladies gave support to early American clubs like Shinnecock Hills when their great interest in the game helped stimulate male participation. The first workable handicap system was developed by the British L.G.U. and later copied by the men. Women enjoyed golf despite early limitations at some clubs. Rules such as, "Women are allowed to use but one club, the putter," or, "Women can play every other Saturday from May to October," are now passe! Pioneer women competitors were described as "being equipped with 4 or 5 clubs, an India rubber tee, three good golf balls in respectable condition and ready for all serious competitions for that season."

A More Recent Triumvirate

Swing changes in the last generation have leaned more toward subtle refinement rather than drastic revolution. Analysis of technique has improved with the availability of high speed video and photography for both teachers and players to study.

Observing the styles of the most recent triumvirate, Palmer, Nicklaus and Player, would certainly not lead you to a single definitive conclusion as to the one and only acceptable swing model. The principle you *would* affirm is the reality of individual difference.

Arnold Palmer

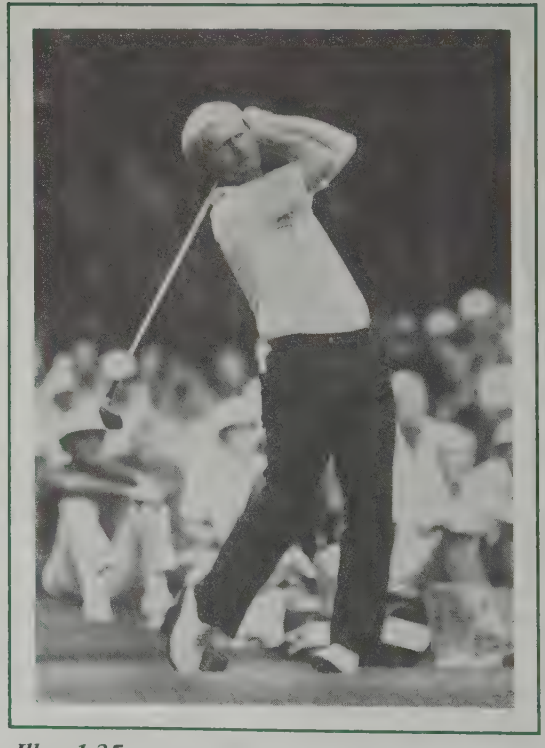
In his prime, Arnold Palmer's swing might not have looked as graceful as the fluid classical motion of Sam Snead, but his technique was unquestionably effective. He proved one could attack the ball with an aggressive tempo while still successfully timing the clubface back to a square position. Palmer's reputation for accurate driving backs up this observation. One of the important elements of his style was the left-hand grip position. The club was moved slightly out of the fingers and deeper into the palm where only one knuckle was visible at address. To keep the clubface from opening, the left wrist was arched at the top of his backswing. This kept the hands firm and the swing taut. Power came more from the body and arms with a hitter's motion. Palmer wound the upper half of his body over the lower for greater torque, a style which was to be copied by many. Palmer demonstrated quite dramatically that the left wrist position at impact, "bowed to the target" and "slightly arched downward," could be maintained throughout the swing. Granted, it required strong hands and arms, but he had them. (Illus 1-34)

Illus 1-34
Arnold Palmer possessed the strength to fashion an unorthodox but highly effective style.

Jack Nicklaus

Jack Nicklaus, "Player of the Century" and holder of more major titles than any one golfer in history, blended many of the popular modern elements into one swing. He had a neutral hand position for the grip, square on-line setup, one-piece square-faced takeaway, a wide arc, a big shoulder turn with high hands tending to be upright, flat left wrist position at the top of the backswing, strong leg action with both knees flexed at impact, a feeling of left-side dominance, back of the left hand facing the hole at impact and a big finish with the clubhead pointing toward the ground behind the back, but still with the last three fingers of his left hand holding on in control.

There were some idiosyncrasies of the Nicklaus action. The flying right elbow in his early career was the result of continually trying to get the widest possible arc, but this contributed to his incredible distance. Lifting his left heel so high on the driver swing was caused by a big upper body turn over a lower body that wasn't as flexible as players with a more slender build. Keeping his head perfectly still gave him a slight reverse weight shift on the long clubs, a position that he altered later in his career. (Illus 1-35)



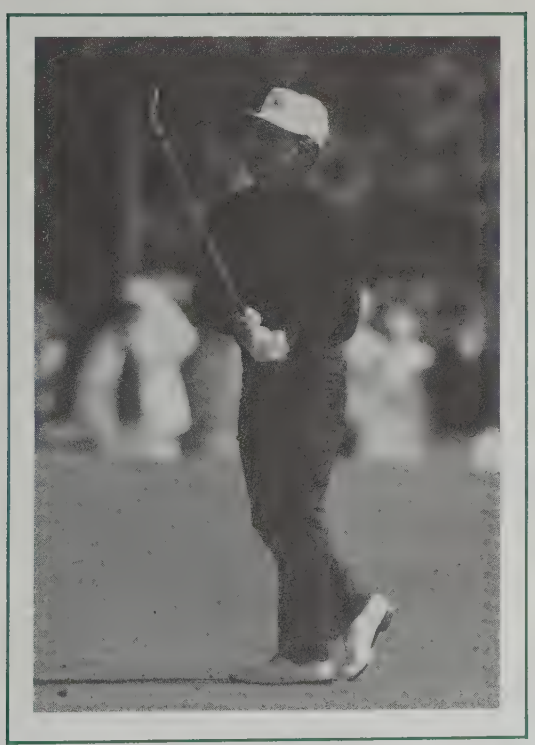
Illus 1-35
Jack Nicklaus used a big turn and "high hands" to help generate his great power.

Gary Player

It is more difficult to critique Gary Players' swing during his most productive years because analysis would depend upon which swing he was using. No player in history has been so successful while changing his technique from one season to the next, sometimes from one week to the next. Player was frightfully inquisitive and would politely listen to anything or anybody about the golf swing — and more often than not, try what was told him. Fortunately, he was very discriminating and could quickly sift and sort the good advice from the bad. More importantly, he had confidence in whatever he was doing at the time and made it work.

The comment on Player's tendency to try different approaches is not intended to criticize Players' golfing techniques which for the most part were quite sound, it's just that at times it was difficult to tie them down. He believed that the grip should be in the fingers and the setup of the hands at address nearly the same as at impact. Square alignment in the stance; an extended, almost rigid left arm at address with the right elbow tucked more than most, further characterized his style. This was modified somewhat in later Senior Tour competition. Throughout Player's career he maintained a straight left arm in the backswing and liked to have the right elbow not wander far from his side. A strongly inward-braced right knee at address, a big body turn with the club past parallel with the driver and very active use of the legs to accentuate a "delayed hit" were all swing characteristics identified with the "man in black." (Illus 1-36)

Player's contributions on how to more effectively play the game came more from his attitude than his technique. He was a dogged competitor under all circumstances and would never give up. His dedication to physical fitness has served as a role model to help the next generation of players realize the value of "training for golf."



Illus 1-36
Gary Player has always been aggressive in his shot-making style.

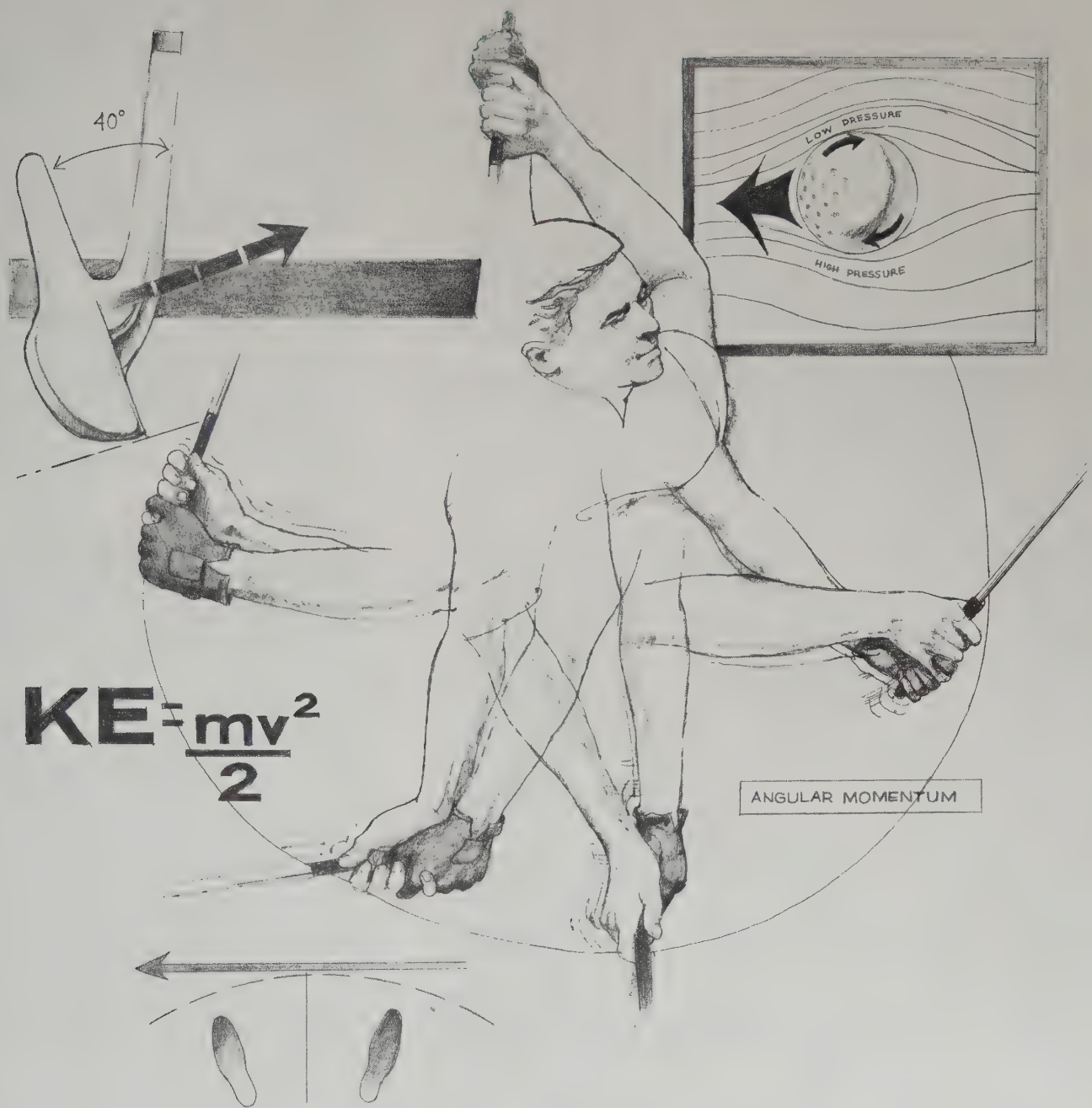
Conclusion

Palmer, Nicklaus and Player were certainly different from one another in many ways, while very much the same in one — they were champions. And so it has been with the top golfers of every era, *a variety in swing style has been the rule rather than the exception.* There have been changing trends in technique that the best players followed. Today for example, when observing a broad spectrum of the current generation of top players, *there is a decided de-emphasis of active hand action with less forearm rotation. This has been supplanted by increased upper body release with a slightly flatter swing and more lateral motion of the upper body in the long game.* Yet, each is an individual. Many players, past and present exhibit non-conforming fundamentals in play which are actually breakthroughs that became trends in the next generation. It's called *evolution.* It has definitely happened to the golf swing.

CHAPTER 2

Science Applied To Golf —

Cause And Effect

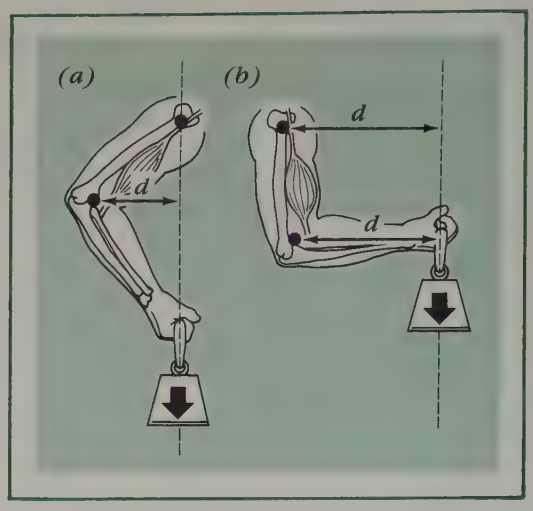


CHAPTER 2

Science Applied To Golf — Cause And Effect

Any in-depth study into the mechanics of golf performance could lead one into several branches of science. *Kinesiology* (also called Bio-mechanics), is the study of human motion. (Illus 2-1) The foundation discipline necessary for studying kinesiology is *Human Anatomy,* or how the body is constructed. *Physics,* or a division of physics known as mechanics, has application to Kinesiology by investigating, among other things, the mechanical transfer of energy, such as when the clubhead meets the ball. (Illus 2-2) *Geometry* is a science defining, comparing and measuring lines, angles, surfaces, etc., can be related to the study of the golf swing as well. One chapter to cover these disciplines woefully limits their treatment, but hopefully the reader's interest may be piqued sufficiently to pursue the matter in more depth, by studying of the bibliographical references or sources on these subjects.

Understanding the human body, how it works and how it transfers energy to produce the flight of a ball will not *in itself* make a person a great golf teacher or player. In fact, it would be difficult to find, among teachers or players, anything but a handful of individuals conversant in-depth on these subjects. But in this new age of scientific applications to sport, with the use of computerized biomechanical digitizing and three-dimensional simulations complete with analyses, it is a great advantage to have some basic understanding of science, particularly of anatomy and kinesiology, when teaching the golf swing.

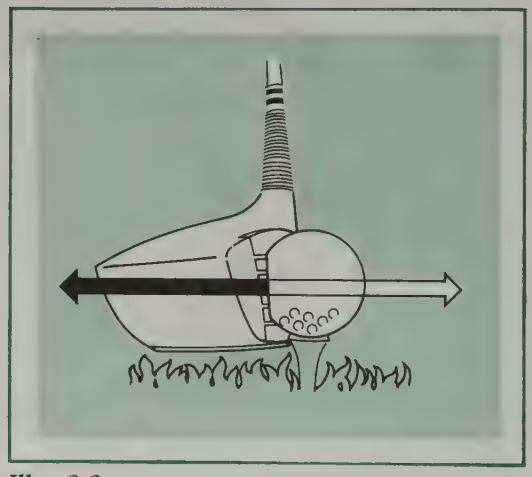


Illus 2-1
The science which investigates and analyzes human movement is kinesiology. Kinesis is a Greek word meaning motion and logy is an English word meaning "science of."

Anatomical Facts

The human body consists of some 210 *bones* of a variety of sizes and shapes. Short bones, as in the ankle and wrist; long bones as found in the leg and arm; and flat bones of the skull and breast. These bones are connected to each other by ligaments. Some bones are arranged in link fashion allowing versatility in human movement. This linking structure has the capability of producing surprising velocity when applied in sequential fashion such as occurs in a good golf swing.

The body is equipped with over 600 skeletal or striated *muscles* which are attached to the bones and serve to produce the power for movement of the skeletal structure. These act like a cable pulling up a drawbridge or pulling a door closed. Muscles represent approximately 43% of one's body weight and have the capacity only to pull not to push. (f 2-1) The term *muscle* comes from the Latin word for mouse. Like a mouse, a muscle has a "body" which is the muscle itself, and a "tail," which is the *tendon.* The tendon acts as an extension of the muscle and attaches the muscle to a bone. (Illus 2-3) To limit the range of motion that a muscle can move a bone, and also to tie the bones together, a series of *ligaments* are attached to the bones at many joints in the body. (Illus 2-4)



Illus 2-2
There are many opportunities to apply laws of physics when studying the golf swing.

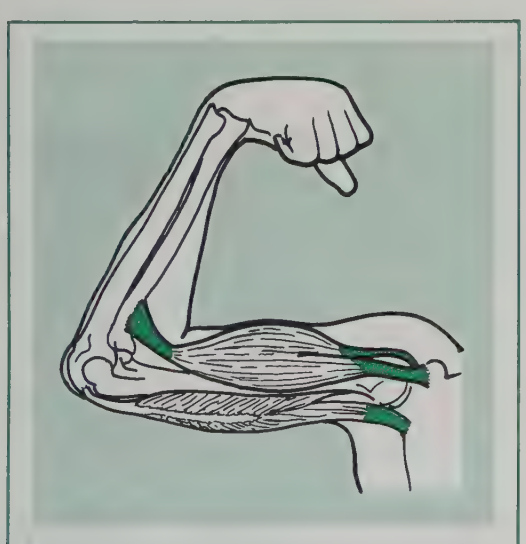
f 2-1 Obviously, the human body can be used to push objects but the muscular force applied to the lever doing the pushing must be a pulling action.

Illus 2-3
In golf one hears about tendons when they become inflamed, as in tendonitis. "Golfer's elbow" is a common example.

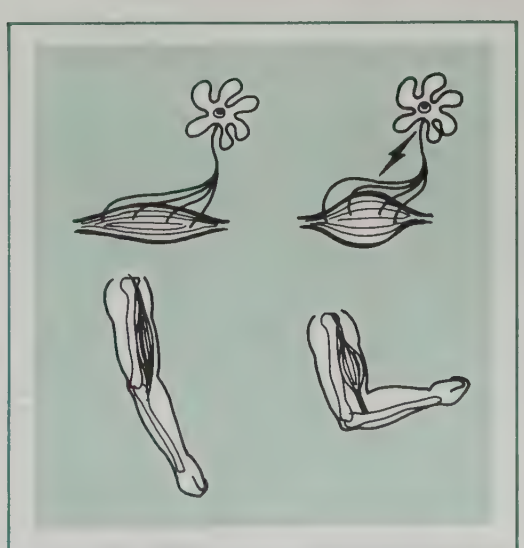
Bones and muscles need a blood supply to maintain and repair themselves. The physically well-trained person will heal more rapidly than the untrained because of the greater number of capillaries developed through increased blood flow from exercise. This is one of the advantages of walking the golf course. The muscles of the legs massage the blood vessels, aiding in circulation that also helps strengthen bone structure. In addition, such exercise promotes a strong and supple musculature for protection against joint injuries.

Besides helping blood circulation, leg muscles help maintain body balance during the swing. Muscles are also important in creating a good swing posture. But, more frequently we think of muscles as the *motors* that move every part of the body. You can't talk, breathe, eat or blink without using your muscles. All muscles produce movement in the same manner. By contracting they shorten, *pulling* on tendons or attachments which in turn move bones. For example, when the biceps (which is on the front of your upper arm) contracts, the forearm is brought toward the shoulder, decreasing the elbow joint angle. (Illus 2-5)

Muscles also have a variety of shapes. These shapes influence their potential force. A muscle's force depends on its physiological cross-section or size and where it is attached to the bone in relation to the joint. The golfer has no control over the attachment location or the length of the bone but, through training, *can* influence the cross-section. Biomechancial scientists are aware of the origin and insertions of the various muscles and can prescribe exercises to strengthen those muscles. They also can analyze the movements to see if they are technically efficient for the activity being performed.



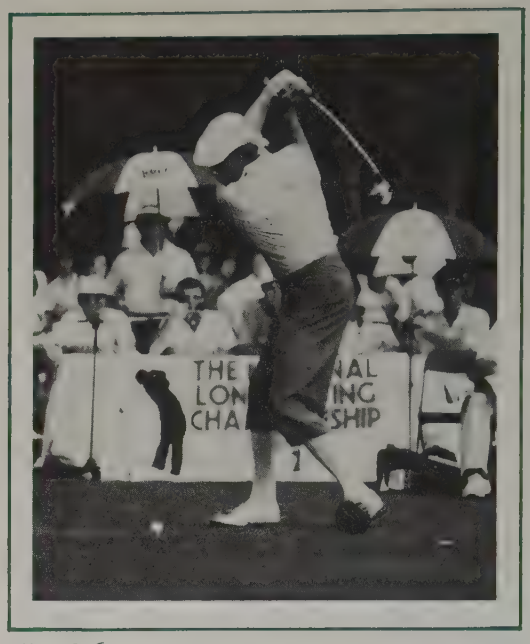
Illus 2-4
Ligaments, like muscles, are less susceptible to injury when they are warmed up before strenuous activity.



Illus 2-5
Muscles move bones when electrical impulses cause the muscle to contract.

The Stretch Reflex

To gain the best response from a muscle or muscle group, the muscle should be put on stretch. For example, throwing a ball at a high velocity requires the pitcher to reach back with the throwing arm while stepping forward with his leading leg to put the trunk, chest and arm muscles into full stretch. The elasticity of the muscle when positioned near full stretch helps initiate movement. This is known as the *"stretch reflex."* In a golf swing the stretch reflex is utilized when, in the backswing, the turning of the shoulders goes beyond the rotation of the trunk and the swinging of the arms carries past the turn of the shoulders. (Illus 2-6) In this way "extra stretch" is created to aid in initiating motion in the other direction. A person losing flexibility due to age or poor conditioning is unable to create a full range stretch or complete backswing, thus losing a great deal of potential clubhead velocity.



Illus 2-6
The top of Payne Stewart's golf swing demonstrates the stretch reflex. (This swing is much longer than his normal swing as he's competing in the National Long Drive contest.) A chain of resistance (legs, hips, trunk, shoulders, arms) is created to put the various muscle groups into a strong position to return. The correct sequencing is the most critical factor.

It is also important to understand that muscles can work either *dynamically* or *statically*. Dynamic work results when the origin and insertion of the muscle move in relation to one another as a result of muscular contraction. Flexing your arm with the biceps muscle would be a dynamic movement called "concentric" or *toward*. If the origin and insertion are moving away from each another and the muscle is trying to stop them, you have other dynamic but "eccentric" *away* movement. When a muscle contracts without movement, working statically rather than dynamically, it is called *isometric*. The pectoral muscles of the chest, for example, may be flexing in the forward swing, but they would be isometric in their contraction, acting as stabilizers, rather than dynamically as movers.

Muscles can develop more force in a concentric motion (forward) if first worked eccentrically (away). For example, a person is given two trials to make a maximum jump vertically. In the first trial, the person squats 90 degrees at the knee joint and leaps into the air. On trial two, the same person stands vertically, then drops to the same 90 degree knee position, then rebounds vertically to jump even higher. The eccentric stretch caused by trying to halt the downward movement makes the upward movement even stronger. This is another example of the stretch reflex. It explains why trying to start the golf swing from a static position at the top of the swing will never generate as much force as swinging to that same position from the ground; the latter has the benefit from an eccentric boost.

Skeletal muscles are organized in pairs, the *prime movers* (agonists) and their *antagonists* or opposites. As in an earlier example, if the desired action is to flex the elbow and raise the forearm, the contraction appears in the biceps muscle on the front portion of the upper arm as the prime mover. Its antagonist, the triceps, is in the back of the arm. If the desired motion is to extend the lower arm, the triceps becomes the prime mover and the biceps the antagonist. To produce graceful, coordinated movement, one must learn to appropriately relax the antagonists when the prime muscles are contracting. When one hears the admonition to "relax" in relation to the golf swing it really means "relax the antagonists" while the "prime movers" are firing. When muscular tension creeps into a golfer's swing, one problem can be that he is tightening his antagonists, inhibiting a free, flowing motion.

Illus 2-7
A very useful warm-up sequence called a "no ball warm-up," starts by swinging two wedges, beginning with small swings and building to full swings with good tempo.

Physiological Importance of Warm-Up

Warm-up is important for getting blood into the musculoskeletal system to enhance movement and to prevent straining or tearing of muscles, tendons or ligaments. The analogy may be made comparing unwarmed or warmed muscles to the pliability of a dry vs. wet sponge. Also, our protective reflex signals contained in muscle spindle and tendon organs travel more slowly when not warmed up and, therefore, can more easily allow injury. Teach and encourage players to use a basic warm-up routine before playing or hitting balls with a full swing. The following series, called a "no ball warm-up," is recommended. (Illus 2-7, 2-8, 2-9, 2-10)

Illus 2-8
The second step is to put the driver across the low back and through the crook of the elbows and make body turns as in the swing utlizing normal footwork. Next hold the club across the shoulders, behind the neck and repeat. Then drop the club behind the back and with arms extended, elevate the club and arms and continue to swing. This last exercise loosens the upper back and shoulder region.

Illus 2-9
Make practice swings letting go with the right hand near impact. This will remind your body to utilize the left side and not let go with the last three fingers of the left hand.

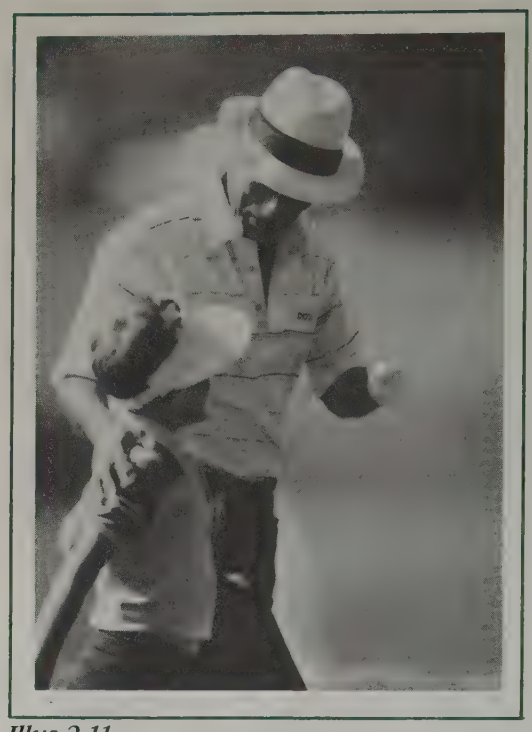
Illus 2-10
Finally, make practice swings with both hands on the grip focusing on tempo and finishing on the left side with the right heel in the air.

Musculoskeletal Weaknesses

Man, in evolving from a quadruped to an erect biped, has had to deal with developmental weaknesses that relate to his golf.

1. To permit more twisting and bending, the vertebrae, over a period of hundreds of thousands of years, have become more wedge-like and they pivot on the vertebral edges which act as hinges. This can cause problems when a person engages in *incorrect lifting,* such as removing a golf bag from the trunk of a car. Also, *the stress on the spine,* due to poor mechanics such as an exaggerated lumbar twist in the swing, can cause severe lower back pain.
2. The longitudinal shortening of the pelvis has widened the space between the last rib and pelvis causing a weakened abdominal wall which affects the posture at address. A golfer whose stomach is soft and flabby has a more difficult time keeping his spine aligned correctly during the set-up and puts undue stress on his lower back.

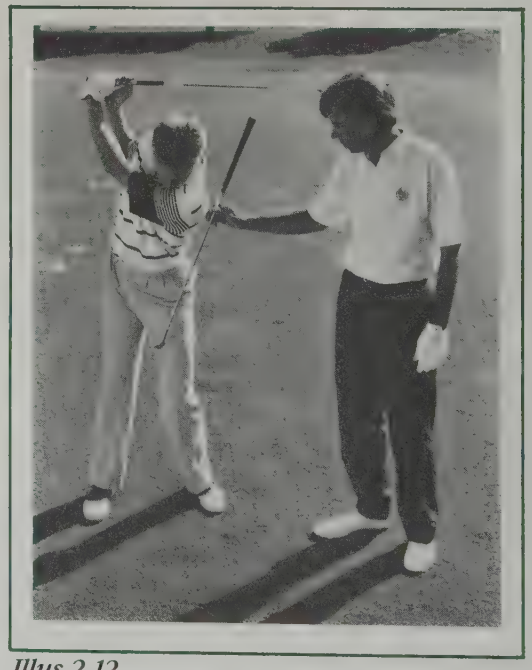
Nonetheless, man has a versatile body which, when properly cared for, can accomplish a broad range of motor tasks. But there are tremendous individual differences in the inherited physical characteristics of humans. Differences like size are obvious, such as a huge Andy Bean standing next to a slight Corey Pavin or a hefty Craig Stadler compared to a lean Mike Reid. Other physical characteristics are far more subtle. Just looking at an inert Ben Hogan in his prime would not give an appreciation for the tremendous physical strength in his hands and arms. Until one sees Chi Chi Rodriguez in action, it is difficult to appreciate his ability to produce a lightning-fast swing, made possible partly by a great neuromuscular system. (f 2-2) (Illus 2-11) The musculoskeletal systems of Seve Ballesteros (extremely supple) and Dan Pohl (more rigid) certainly affect their style. How is one to know by just looking at a group of prospective students which of them is flexible or rigid, strong or weak, quick or slow-moving? That is where judicious questioning, testing or observing a student is most important. For assistance in this matter see the "Preliminary Physical Test" at the end of this chapter.



Illus 2-11
Chi Chi Rodriguez with an admiring fan. Who could tell just by looking at Rodriguez that he can generate so much clubhead speed?

A Kinesiological Description of The Full Swing

The golf swing is similar to the throwing motion of a sidearm/underhand baseball pitcher. This motion, involving a strong rotary action of the body, produces force that is transmitted through the arms, hands and clubshaft outwardly to the clubhead and finally to the ball. While the longer lever of the club introduces considerable speed, it also complicates control. When one considers the small striking surface of the clubface and the timing required to present the clubface both squarely and on line, it becomes easy to see why consistency in shotmaking is both an athletic and mechanical challenge.



Illus 2-12
The player who "reverse pivots" cannot rotate the pelvis on the backswing.

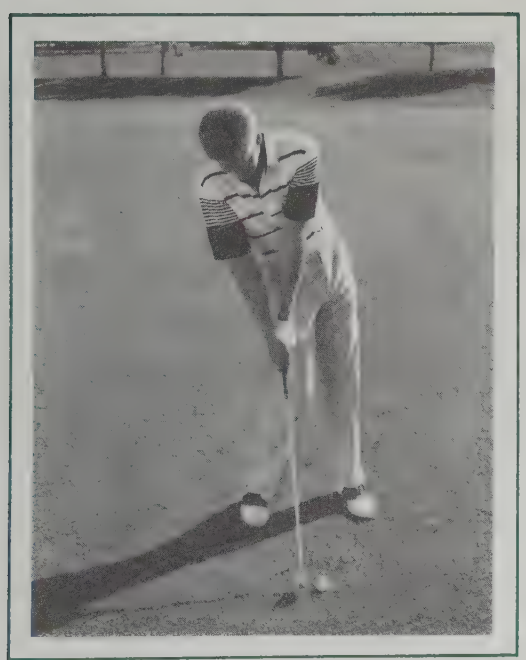
f 2-2 Neuromuscular refers to the relationship of nerves to muscles, specifically the transfer of electrical impulses from the nervous system to the muscular system.

The golfer's objective in making a swing should be to hit through the center of the ball on a line toward the target: This has been labeled "the line of compression," the "secret to golf," by Homer Kelley, author of *The Golfing Machine.* This swing is made on an inclined plane with clubs that have variable lofts and lengths for controlling height and distance. Returning the clubhead to the ball on the correct plane (being on-plane) is one of the principles of a good golf swing.

A simple model for the swing is a double pendulum with the hinges at the wrist and shoulder. If the elbow is allowed to be another hinge and is markedly bent in the backswing, the timing becomes more difficult as does consistent clubface/ball contact. While the left arm should not be extended to the point where it causes muscular tension, it will naturally extend in the forward swing due to the pull of centrifugal force. This extension creates a longer lever, and therefore, greater mechanical advantage. Undue muscular tightness or prematurely pressuring the shaft can disrupt this movement.

Coiling or winding the trunk in the backswing creates potential energy for the forward swing. The wind-up or pivot occurs around a center of rotation, the spine. Accompanying the pivot is a transfer of weight from its starting position to an emphasis more on the rear foot. The amount of weight transfer will depend on the player's style and the club being used, less for short shots than long. The coiling of the trunk and loading of weight over the rear leg increases the potential force that can be transmitted to the ball. The larger muscles of the legs, hips and back are incorporated to add to the power package and to the swing arc, making it longer. Transferring weight to the rear foot creates the opportunity for additional force when the weight is shifted to the forward foot, toward the target. This is a motion common to any striking or throwing action. The transfer of weight which flattens the arc turns it from a circle, into an ellipse. This flattening is important as it allows the clubhead to travel longer on the target line, thus reducing the potential for error. Byron Nelson, one of the game's straightest drivers, when tested with other tour players of his day, produced a swing that had the clubhead travelling toward the target longer than anyone in the test.

A false pivot, known in golf parlance as a "reverse weight shift," is commonly seen among poorly skilled players. In this action the weight stays over the forward leg during the backswing, and the trunk does not get adequately involved. (Illus 2-12) This causes the player to transfer his/her weight in a direction opposite that of the swing, thus reducing the applied force and creating an incorrect swing arc. (Illus 2-13)



Illus 2-13
Nor can they make a strong unwinding move toward the target on the forward swing. Instead, it becomes, "hit with the upper body and fall back."

The base of support for a golfer's swing action is the feet. The transfer of force is affected by the resistance (reaction) from the ground. Slipping diminishes the force, making cleated shoes (spikes) a valuable asset to the player. Width of stance also can influence the effectiveness of the swing. If the stance is too narrow, the foundation of support is not adequate for a powerful swing, causing the player to lose balance. Conversely, if the feet are spread too wide, pelvic rotation is restricted and a full turn cannot be made. In addition, a stance much wider than the recommended "shoulder width" makes it difficult to transfer weight from the rear foot to the forward foot. Weight transfer not only adds to power, but is an important contributor toward setting the club on the correct plane and directing it toward the target. This is accomplished when the center of the swing arc (a point near the left shoulder) moves slightly forward and upward in the forward swing, thus flattening the swing arc. This body movement adds kinetic energy to the rotational force of the club/golfer system which is imparted to the ball. In golf parlence this is known as a "late hit."

The hands are the only connection between the club and the power source, the performer. Through the hands energy is transferred, and with the hands the clubface is controlled. The choice of grip technique will be influenced mostly by hand size, hand strength and the selected style of swing. If the player seeks more leverage as in a "hitting swing," then the hands might be spread more as in a ten-fingered grip (baseball) for the right hand to effectively apply additional pressure against the shaft. Should the player desire to rely more on centrifugal force for a "swinging hit," then the hands should be closer together, (as in an overlapping grip) working as a unit, with less pressure felt from the right hand.

Cause and Effect — The Results of Performance Technique

Before any serious discussion on technique begins, we should first understand why the ball goes where it does. There is a cause for every result in golf, reason or reasons for every well-executed shot and every miscue. No mystery, no secrets, only cause and effect. Understanding the results of performance technique, or cause and effect, is essential to the progress of any serious golfer.

Golf, like its early contemporaries from Europe (jeu de mail, chole, and colf) is a stick and ball game. The objective is to strike a ball so that it will travel from point A to point B. There are really only two logistical problems which must be overcome to make that happen: (1) to negotiate a stipulated DISTANCE; and (2) to arrive at a selected target in a given DIRECTION. If a player could accomplish these two objectives completely, he/she would play 18 holes in 18 strokes — the perfect round...the round which never will be played. All additional strokes above 18 taken enroute to the final score involve a player's attempts to overcome those two elements, **DISTANCE** and **DIRECTION.** Whether a two-foot putt or a 235-yard fairway shot, the elements remain the same.

f 2-3 The "moment of impact" as defined in this book does not refer to the clubface initially touching the ball, but rather the moment at which the full energy is transferred, just prior to separation.

To solve these two challenges, one should understand what is needed to overcome them. DISTANCE has three primary factors and DIRECTION, two that can be controlled by human performance. These can be influenced by technique and are all measured at the moment of impact (f 2-3).

DISTANCE = (1) Clubhead speed
(2) Centeredness of contact
(3) Angle of approach

DIRECTION = (1) Path of swing
(2) Clubface position

Factors like weather (wind and rain), design and construction of equipment and terrain can obviously influence both the DISTANCE and DIRECTION of a shot. But these are factors not directly under the player's control.

Distance — Speed Factors

Of the three primary DISTANCE factors over which the player has control, the first, clubhead speed, is influenced by *five* human variables:

(1) physical strength
(2) body flexibility
(3) swing technique
(4) leverage (body lever lengths, such as the length of the left arm)
(5) neuromuscular coordination

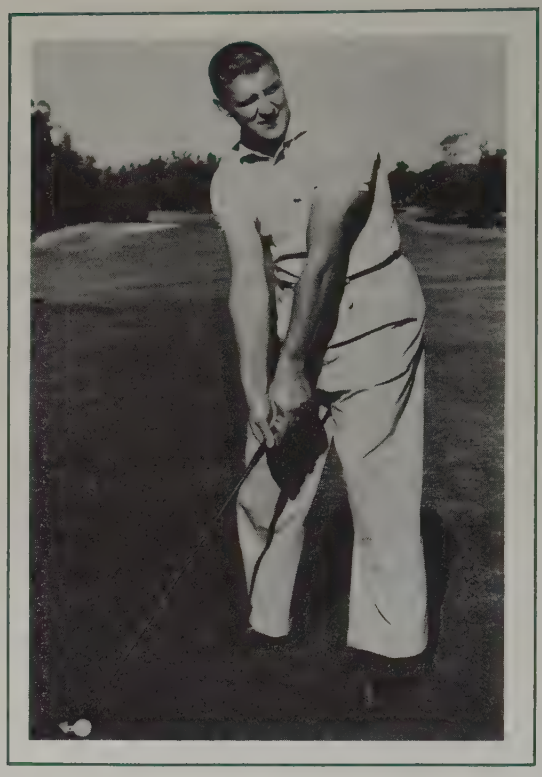
Strength is the more important human factor which influences distance. It's the primary reason why we have different colored tee markers for men and for women. However, we have all seen examples of a physically strong male golfer who couldn't hit his tee shot as far as the weaker local female junior champion. Therefore, there are other factors affecting how far a ball can be hit besides strength.

In a case such as that just described (the strong male and female junior champion), the male may possess sufficient *strength,* (variable #1 from the previous list), but have limited body *flexibility* (variable #2), coupled with a poor swing *technique,* (variable #3). The poor technique may not be of his choosing, but stems from his restricted range of motion. This is an important factor for the teacher to appreciate. The pupil may be a victim of his body condition and unable to perform what the teacher requests.

Variable #4 relates to *leverage.* Those with equal horsepower and longer levers, (i.e. long arms) have the potential for greater clubhead speed. (Illus 2-14) That is why players are encouraged to have an extended left arm at the moment of impact, though extended does not mean locked straight, for locked would cause tension which inhibits speed. The length of one's arms is an inherited attribute and can't change. All a player can be expected to do is to get the most from what he/she has. One can buy a longer club, but not a longer arm.

Variable #5 is *neuromuscular coordination,* which has to do with the ability of the body to use muscles at the right time and with the correct force. This trait is strongly influenced by heredity. Pupils come to the lesson tee with certain talents along with some deficiencies. Some of the deficiencies are beyond the teacher's control. Therefore, teachers must concentrate on those factors over which they have the most influence.

It should be evident from these comments that the two factors of strength and flexibility, play an important role in helping the player achieve success in his/her technique. Both can be enhanced through training. Combined with technique (the link action which is the most important of the variables) the three, when improved, can produce more clubhead speed and greater distance.



Illus 2-14
George Bayer, the longest hitter in golfing history, had a great lever length advantage to go along with his strength, flexibility and good coordination.

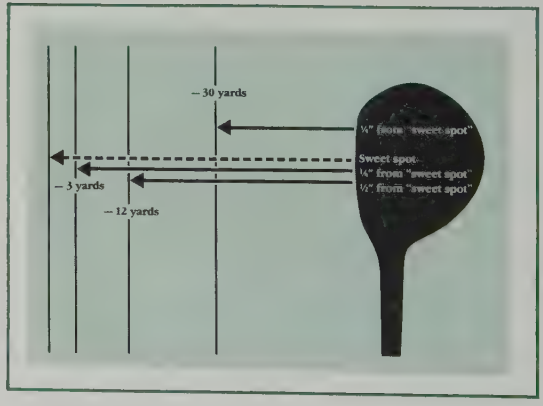
Centeredness

Speed without contact leaves the ball still on the tee, so speed needs a partner; the centerfaced or square hit. A clubhead speed of 100 m.p.h. with a square hit produces a drive of approximately 240 yards. Given the same speed with an off-center or non-square hit, the shot will travel a reduced distance. Off-center shots produce a glancing blow that transfers less energy to the ball. The accompanying chart shows this effect. (Illus 2-15)

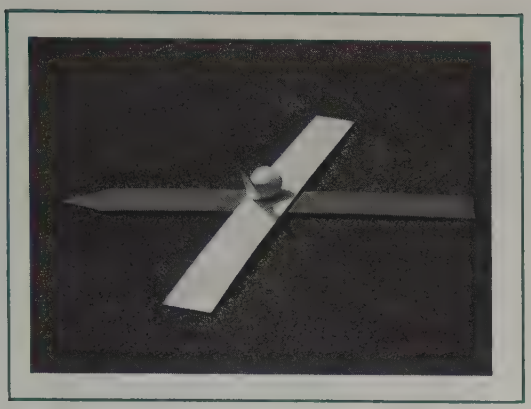
Angle of Approach

The angle of approach of the clubhead to the ball also affects the distance a ball travels. A steeper approach creates more backspin, more lift and less distance. Also, the more the angle of approach deviates from the arc that produces the launch trajectory for maximum distance the less energy is transmitted to the ball for sending it forward.

Experienced golfers have produced drives which seem to jump off the clubface, yet were made with a swing of less than full-effort. There is that special surprise as they walk to the ball and find it well beyond their normal distance. What happened? Very simply, three things. With an unforced, well-timed swing a golfer can: 1) catch the ball with increased consistency in the *center* of the clubface; 2) present



Illus 2-15
The high-handicap golfer seldom finds the "sweet spot," thus decreasing his/her distance.

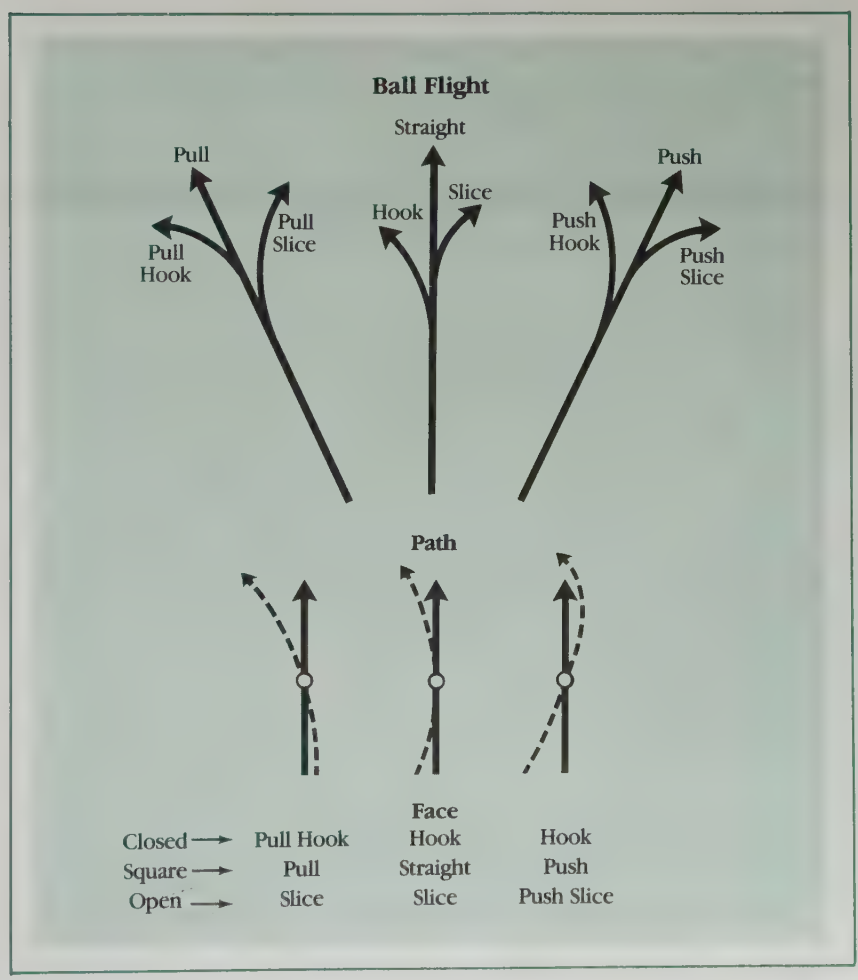


Illus 2-16
This teaching aid makes the demonstration of ball flight quite simple. No mystery, just cause and effect.

an angle of approach to the ball *which enhances the maximum transfer of energy* and produces proper levels of backspin; and 3) *release full power* without experiencing the usual inhibiting tension. This combination of factors is the formula for a player's best length. Speed + squareness + angle of approach = the *cause* that produces the *effect.*

Direction

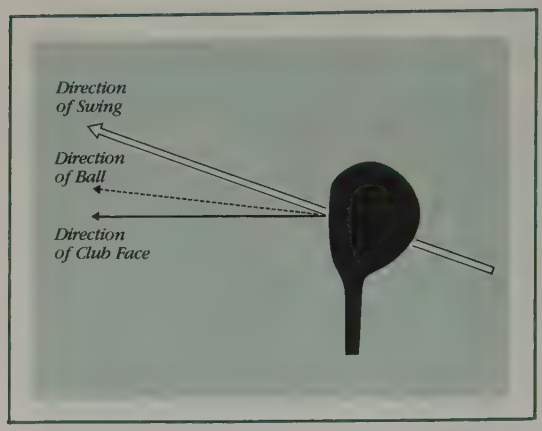
When explaining to a student or clinic audience the two factors which primarily influence **DIRECTION** (swing path and clubface position), it is useful to have a visual aid. (Illus 2-16) The pointer arm represents clubface path, the other arm depicts clubface position. All ball flight direction is a result of the relationship of these two elements at the moment of impact with the ball. With these two arms at right angles, one *always* gets a straight shot; when they are *not* at right angles the ball always curves. Notice the statement, "always." That's because these are absolutes. *This is cause and effect.* The ball has no choice but to respond in one of the ways it is depicted in the following nine basic shot patterns. (Illus 2-17)



Illus 2-17
Players should learn the nine shot patterns and their basic causes, i.e. inside path + closed face = hook or draw.

It's no mystery why the ball goes to the right, to the left, curves, or goes straight. It's plain geometry and physics. One needn't have received an A in either subject at school to understand how it applies to golf. Under ball flight, the pull, straight and push shots are straight shots — straight left, straight forward, and straight right — because the clubface is square to the swing path in each case. All the rest of the shots are curves, because the clubface is either open or closed to the swing path. If it's open a small amount, it's a fade; open a large amount, a slice; closed a small amount, a draw; closed a large amount, a hook.

Face position has a greater potential to influence the flight of the ball than does swing path because it has more possibility for variation. *The direction in which the ball starts will always be the result of a combination of swing path direction and clubface position.* Where the ball starts will also be influenced by the velocity of the clubhead. The slower the clubhead is travelling, say in a putt or chip, the more precisely the ball will come off in the direction the clubface is presented. With greater clubhead speed, the ball's starting path will move somewhat closer to the swing path line than before, but will always fall in between the face and path direction favoring the face angle. (Illus 2-18) It is sometimes incorrectly stated that the ball starts on the swing path line. This is true only when the face is at right angles to that line. So remember, the face has a greater influence than path, but the higher the clubhead velocity, the greater is that particular vector force moving the ball's starting direction closer to the swing path line. This information is particularly helpful when attempting to create the mental image of intentionally hooking or slicing a ball around an obstacle.



Illus 2-18
Although the path of the swing does influence the ball's starting direction it is of lesser influence than the face.

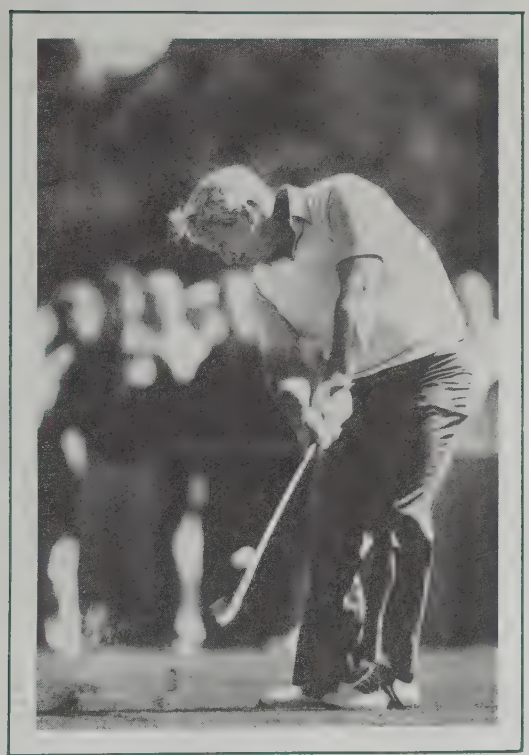
Learn To "Read Shots"

Students will be helped in their concept of cause and effect if they are taught to "read their shots." After they have played a full shot with a long club, ask them to report the result in the following manner. "The shot was a push slice; that means I made an inside-to-out path with a slightly open face." Or, "The shot was a pull; it was caused by an outside-to-in path with the face square to the path." By applying cause and effect, thinking and being able to analyze the basics of ball flight, the student will have taken the first step toward understanding some of the elementary influences of science on golf and eliminating the mystery of faulty shots.

f 2-4 Sports Information Resource Center
1600 James Naismith Drive
Gloucester, Ontario Canada K1B5N4
(613) 748-5658 (Additionally, see PGA Master Professional Theses, Appendix 11-D.)

Illus 2-19
PGA member Fred Griffin, Director of the Golf School at Grand Cypress, teaching with the use of a digitized stick figure comparison swing.

Photo courtesy of Golf School at Grand Cypress



Illus 2-20
Arnold Palmer's brain is just receiving the feedback from impact, well after the ball has left the clubface.

Research exclusively devoted to golf instruction methods, technique and psychological aspects of performance has been rather limited. The majority of what has been done has eluded the popular golf literature. Golf's most ambitiously researched book, *The Search for the Perfect Swing* by Alastair Cochrane and John Stobbs, gives highly readable findings which will be discussed more in Chapter 3. Some of those conclusions are cited in an adapted form here. Unpublished research in the form of doctoral dissertations have not been readily available to the professional teachers of golf. For that reason, a list of these types of references is included in Appendix 2-A. If the reader should find a title that is of special interest, or is looking for more information from articles and master's theses, he/she may contact the Sports Information Resource Center (SIRC) at the address listed here. (f 2-4) Another source of research information not specifically targeted on golf but from which considerable insight can be gained is that which has been conducted in the related areas of motor learning, biomechanics, and sports psychology. Many of these research conclusions apply to golf teaching, training and playing. There is golf research being presently conducted at a number of sites around the country. Golf professionals should be seeing more of these results soon. Reports from Compusport, the biomechanical analysis component of The Golf School at Grand Cypress in Orlando, Florida, (Illus 2-19) and creation of Dr. Ralph Mann have seen publication and are included in Appendix 2-B. Studying the stick figure representations of the swing will be particularly useful for an analysis of detail.

Because a subject or problem has been scientifically researched and conclusions drawn doesn't mean conclusions always prove accurate. Even a cursory look at the history of science demonstrates that what was "fact" at one time proved later to be incorrect or questionable. The following is a sampling of research findings in golf mechanics and learning, much of which will be covered in more detail in later chapters of this manual.

1. The golf swing requires extensive participation by the larger muscles of the body in order to generate the more than four horsepower required to hit a ball the distance of a top class player.

2. Learning a motor skill proceeds in stages from a strong beginning emphasis on the detail and mastery of basic techniques (grip, aim, set-up, takeaway, top-of-swing, finish), to eventual blending of these parts into the complete motion, and finally, at the highest level, where detail and technique become automatic, and only feel and target are important.

3. By the time the brain senses impact and could respond in some way to bring about a bodily adjustment to an error, the golf ball has already travelled some 15 yards from its original position. (Illus 2-20)

4. To be "on plane" the clubshaft must: be parallel to the baseline (target line) of the inclined swing plane when it is parallel to the ground, or during the other stages of the swing, the end of the club nearest the ball must point to the baseline or an extension of it.

5. Errors in swing path produce only one-half the flight misdirection as do errors in clubface position. In other words, a 4 degree error in the clubface is equivalent to an 8 degree error in the swing path.

6. Skill in motor activities is highly specific rather than general. A golfer may have excellent perception ability, a good sense of rhythm, and a high degree of natural flexibility, but possess poor balance, a low level of strength, and slow reaction time. This helps explain why there need to be different swing styles, and why some players are naturally long drivers while others are particularly adept with touch shots around the green. A very few are blessed with talent for all parts of the game.

7. The potential transfer of learning from previous sports experience to golf definitely exists, but the transfer may not always be positive.

8. The margin of acceptable impact error in golf is so small (two degrees of incorrect face alignment at 200-yards places the ball in the rough) that in learning the swing, the utmost in *simplicity* of style is preferred for consistent results.

9. The amount of golf practice by a student influences the amount of learning, although it is not always proportional due to the ability of the learner, the quality of the practice time, and the validity of the practice task.

10. Once the forward swing has begun, it will tend to stay in the plane on which it was started. Therefore, the transition move from the backswing to the forward swing is quite important. (Illus 2-21)

Illus 2-21
U.S. Open, PGA and British Open Champion Lee Trevino demonstrates one of the reasons for his success, a beautiful transition move from the top of the backswing to the left side.

f 2-5 Firm abdominal muscles act as stabilizers for the hips and play a role in producing distance.

11. "Modeling," or the demonstration of a skill to a learner in order to communicate information, has a wide range of effectiveness. Some factors determining such effectiveness are: a) the status of the model, b) the correctness of the demonstration, c) the clarity of explanation accompanying the demonstration, and d) the immediacy of the observer's application.
12. The most powerful swing results when there is little or no slack in the swing and when the forward swing sequence has occurred from the bottom upward: feet, legs, hips, trunk, upper chest, shoulders, arms, wrists, hands and, finally, the club. (f 2-5)
13. Visualization and mental practice can be beneficial to the learner in acquiring the skill and to the player in producing it in competition. Both skills, however, take practice to acquire.
14. To create maximum force at impact, the clubhead should never pass an extended line drawn from the left arm, until after the ball's separation from the clubface.
15. Establishing appropriate goals in a learning situation serves as an effective means of motivating the learner in the skill acquisition process. Goal-setting is important to success.
16. A good follow-through in the golf swing serves to gradually absorb the force and help prevent injury. It also contributes toward the attainment of maximum force *at impact* rather than prior to it. (Illus 2-22)

(For additional technical information which may help see Appendix 2-C. Also, survey information pertaining to teaching that was gathered at the PGA's 1988 Teaching Summit is available from the PGA of America as well as a golf instruction survey conducted by the Mike Hebron and by Golf World Readers.)

Illus 2-22
Masters and British Open Champion Seve Ballesteros demonstrating a full, in balance finish, the result of a good swing.

Preliminary Physical Testing — A Form of Field Research

It's to the advantage of both the teacher and the student to recognize any physical limitations which might make learning more difficult. That is why the teacher must ask if the student has any health or physical problems before instruction begins. Also, determine if the student has had a recent accident or surgery from which he/she is still recovering. The teacher must know what he can expect of the student with the body he/she brings to the lesson tee.

Many students are physically unable to make the kind of swing that will produce the golf shots they might desire. *They need to know this.* While neither the student nor the teacher should impose limitations on the potential progress that can be made, they shouldn't be naive. The student should not have the false expectation that instruction and practice will eventually make him swing like Greg Norman if he doesn't have Greg Norman's physical attributes. (Illus 2-23)

One way to objectively confront that reality, is to administer some tests. Let students discover for themselves that, while they appear to have certain talents, they may also have some inadequacies that could keep them from being tour professionals. This should not be an attempt to put anyone down. A teacher's efforts should always be directed to building people up. But both the student and the teacher should know the talents to tap and the limitations to deal with — they need to be optimistic, but realistic.

If the student wants to be a single handicap player, and yet can't perform some relatively simple physical tasks, he should know that the road to his goal might be a long one.

The teacher needn't test everyone, but when appropriate he may find this battery of tests will help a player recognize what skills he brings to the learning process.

Illus 2-23
Trying to successfully emulate a certain star player like Greg Norman requires a reasonable amount of the physical attributes of that player.

Illus 2-24
Balance is important to sports requiring motion.

Test for Balance

Balance is a skill which ranks high on the list of essentials for success in many sports. In this manual it is referred to most often as "dynamic balance," meaning the ability to maintain equilibrium while in motion. That motion includes transferring the weight to the right side and back to the left during the course of the swing. Since a good portion of the time that it takes to accomplish that task, however, is consumed with the weight predominately either over the right leg or the left leg, the test is a one-leg balance test. (Illus 2-24)

Purpose of the test - To measure static balance and leg strength.

Instructions — Have the student stand vertically, feet close together and both arms hanging at his sides. If he is right-handed, ask for the right foot to be lifted so the student can balance on the opposite leg. Do so while raising the arms to assist in balancing. Ask the student to maintain this position for 30 consecutive seconds.

Criteria — Three trials are allowed to reach the 30-second goal.

f 2-6 Some students may be unable to even put the club behind their neck, which indicates they have very poor shoulder flexibility. Instead, have them hold it in front of their shoulders, just below the Adam's apple.

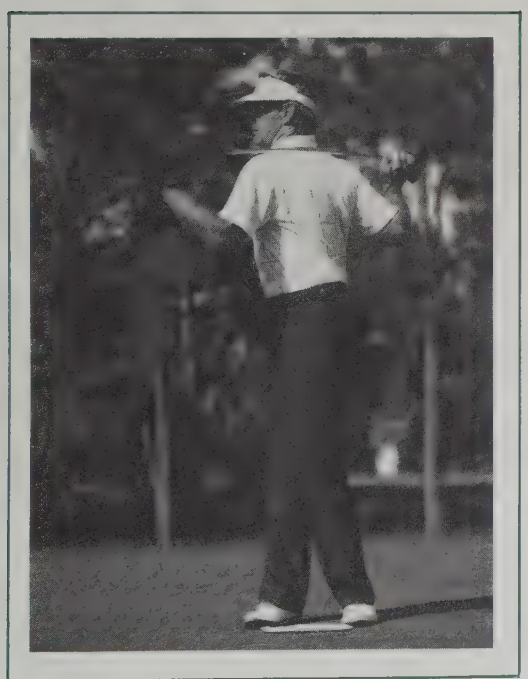
Test for Trunk Flexibility

The ability to rotate the trunk by turning in the backswing is widely recognized as being essential to creating maximum clubhead speed. Persons who do not have this ability or who have had it at one time and lost it, will invariably experience a lack or loss of distance on their shots.

Purpose — To measure trunk flexibility.

Instructions — Have the student stand erect with feet at shoulder width. Give him a driver and ask him to grip it at the hosel with the left hand (for right-handers) and at the end of the grip with the right hand. Now get him to put the club over his head and behind the neck so that it rests on his shoulders. (f 2-6) Place a thermofax copy of the enclosed flexibility protractor (Appendix 2-D) between the student's legs so the baseline runs parallel to his toes and the spokes of the protractor chart radiate toward him (fastening it to cardboard will make it more stable). Ask him to slowly rotate the upper trunk as he would in a backswing and see how far he can turn while keeping both feet flat on the ground. Read the degrees by lining up the position of the butt end of the club with the protractor reading. (Illus 2-25)

Criteria — To see how far the student can rotate the upper trunk.



Illus 2-25
A flexibility test may help to motivate a senior player with a short backswing to begin exercising. (Note flexibility protractor between feet.)

Test for Hand and Forearm Strength

Grip is important in golf as it serves to control the club. This is particularly true in the left hand. As far as producing distance is concerned, strong hands and forearms would be useful to the golfer who is a leverage-type "hitter," but not as critical to the centrifugal force swinger-type. Grip strength, however, is one of the better single measures of total body strength. Hand and forearm strength can be measured best by a grip dynamometer.

Purpose of the test — To identify any marked weakness in the hands and to compare the relative strength of the left and right hands.

Instructions — If grip-measuring equipment is not available, use this more subjective test. Simply ask the student to shake hands, first with the right hand and then with the left, applying maximum effort. This will give the teacher a general assessment of the relative strength of each of the student's hands. (f 2-7)

Criteria — Kilograms or pounds of pull as measured by the dynamometer or a subjective measure of pressure: weak, normal, or strong.

Test for Neuromuscular Coordination

While the tests to this point are generally meant to measure the physical abilities related to a full swing, the following two tests may be more useful to assess skills in the short game where hand-eye coordination, judgment and touch are particularly important.

Purpose of the test — To identify the ability of the student to judge distance and to assess the style and effectiveness of his attempt to toss a ball underhanded to a target.

Instructions — This test for neuromuscular coordination requires six balls. Stick a tee in the ground eight yards away, and spray-paint a line one yard short of the tee and one beyond it. Place a second tee at fifteen yards, and likewise spray a line short and beyond it but this time two yards away from the tee. Ask the student to toss a ball underhanded to have it stop as near as possible to each tee: first to eight yards, then to fifteen, three balls being tossed to each.

Criteria — To get the tosses as close to the objective and as many as possible between the lines.

Summary

There are no norms for these tests. In other words, there is no attempt to rate the student's performance against someone else or to use the information as a tool to necessarily prejudge performance. The purpose is to provide a simple, common-sense battery of tests with readily available equipment to help the teacher and student identify any particular problems which may influence the direction the teaching may need to take.

If a student can't achieve 30 seconds in the balance test, he may need leg exercises to develop more strength, or may adopt a playing style without a great demand for lateral motion.

A student whose trunk rotation reading is less than 90 degrees most definitely needs prescribed exercises to increase that particular range of motion. This student may need to either raise the left heel more than usual in order to get sufficient arc length in the backswing, or to develop stronger hands and arms for better leverage if he is to be restricted to a short backswing.

A very weak grip strength may suggest to the teacher the ten-fingered style grip placement rather than an overlap. Or, if the right-hand grip strength is far superior to the left, extra drills and exercises to build up the left side might be appropriate.

Failing to toss the balls anywhere near the objective may tell the teacher and student that considerable short game practice will be needed to develop superior technical skill should they lack natural "touch."

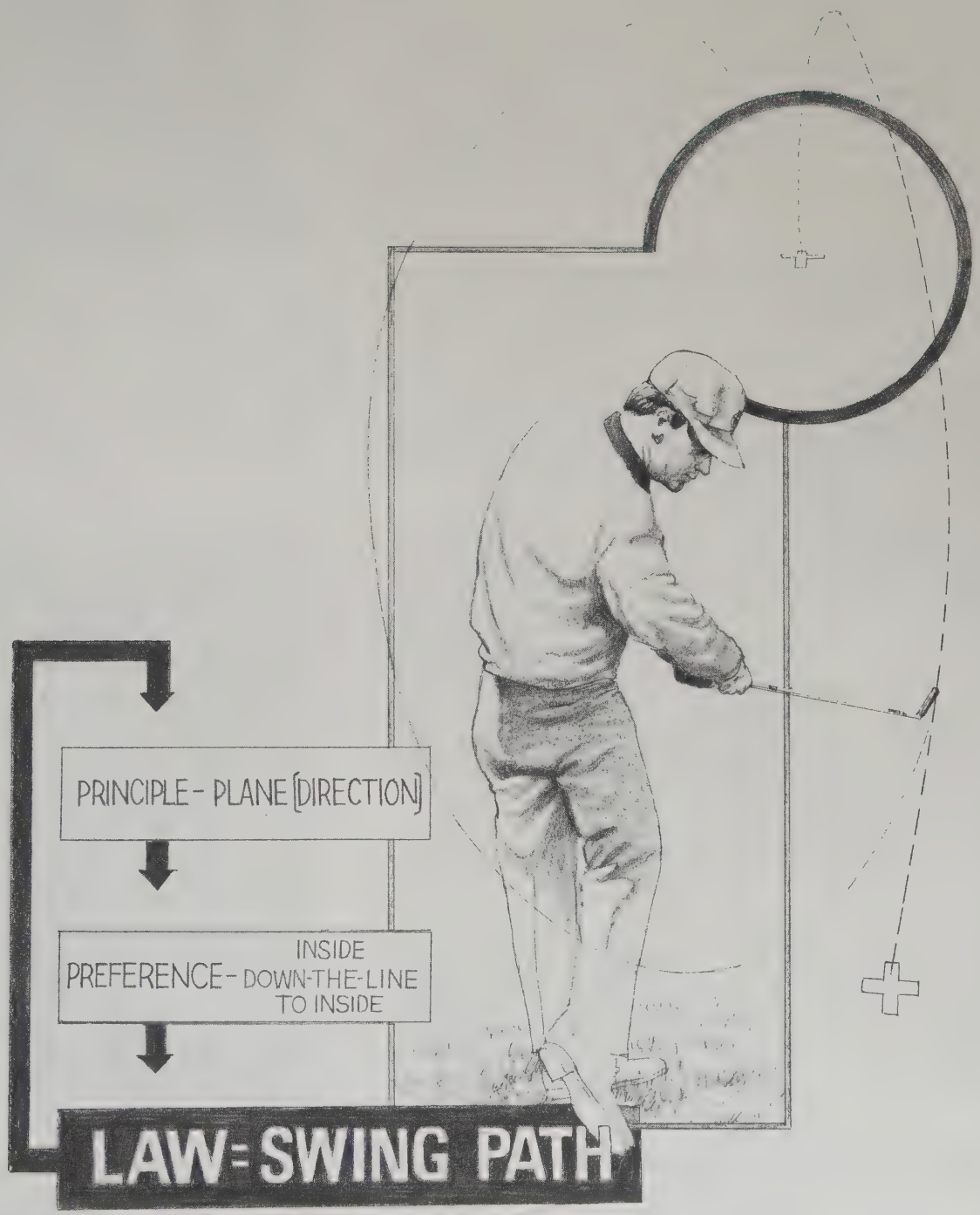
After a few testing sessions the teacher will acquire a feeling for how specific test performance results relate to potential student limitations. He then can tailor his teaching to better help those individuals.

f 2-7 If the student is physically bigger and obviously stronger than the teacher, the teacher can either have the student grip the teacher's forearm instead of his hand, or grip the teacher's hand at some suggested percent of full effort so as not to cause injury.

CHAPTER 3

Laws, Principles & Preferences — A Model

And — Developing a Method to Fit the Model



CHAPTER 3

Laws, Principles & Preferences — A Model And — Developing a Method to Fit the Model

It is time to eliminate some of the unnecessary confusion among golf pupils and teachers of golf, time to find a common ground of agreement and do away with the differences which breed such confusion. It's time to organize the teaching and playing of golf into a logical model that leaves room for the individual idiosyncrasies of players and the individual personalities and preferences of the teachers. With that in mind, a model is presented here in an effort to move in that direction.

Man always has been fascinated by the challenge of the unknown, the resolution of apparently insoluble problems, some worthy, others capricious. One persistent enigma that has tantalized the minds and tested the skills of sportsmen since the 17th century has been "the search for the perfect golf swing." Legions have committed their time and talents toward this end, but none dedicated his enthusiasm and resources in such a grand manner as did Britisher Sir Ainsley Bridgland.

Like others before him, Sir Ainsley experienced a haunting feeling that there must be a hidden secret that was eluding him, some simple key that would unlock the treasure house of the "perfect swing." Certainly, the secret could be revealed. That is precisely what he set out to do.

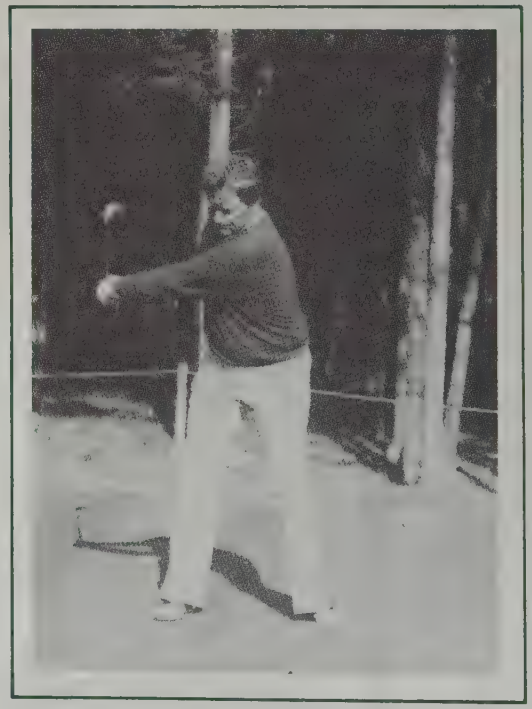
Working through the Golf Society of Great Britain, Bridgland helped form a first-rate research team of specialists representing a variety of disciplines: bio-mechanics, engineering, anatomy, physiology, ballistics, medicine, physical education and ergonomics. The team experimented, discussed and analyzed various elements of the game of golf for more than five years. These sessions culminated in golf's most fascinating technical book, *The Search for the Perfect Swing* (Lippincott 1968), by physicist-author Alistair Cochran and golf writer John Stobbs. A "must" to read for any golf professional. (Illus 3-1)

Illus 3-1
The most complete book ever written on golf that was based upon scientific research.

If Bridgland was looking for "the secret" he probably was disappointed (although we certainly may profit from his investment). For what developed from reams of experimental test data, mathematical models, hypotheses and computer printouts probably was not the answer Bridgland sought. The conclusion: *Although a model can be constructed which exemplifies sound principles, there is no perfect swing. Rather, there are a variety of possibilities that are functional and can be considered correct as long as they do not violate physical law.*

From this conclusion there follows a rationale. If there is no one perfect swing to make, then there can be no one perfect swing to teach. That is, no one swing for all players. If the individual differences in pupils allow for variety in the swing, they also must allow for variety in teaching. Or to put it another way: That there is, in fact, a singular fixed "Perfect Teaching Method" is a myth!

But the right to individualism in teaching does not give license to teach something which violates physical law or principle. For example, teaching a grip with both palms facing the sky would restrict

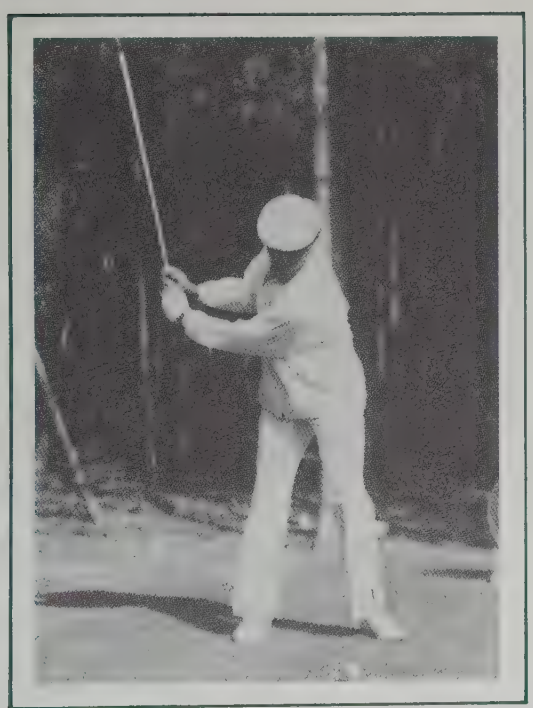


Illus 3-2
Players find a variety of ways to swing a club to answer the problem of Distance and Direction. Such as that of Raymond Floyd.

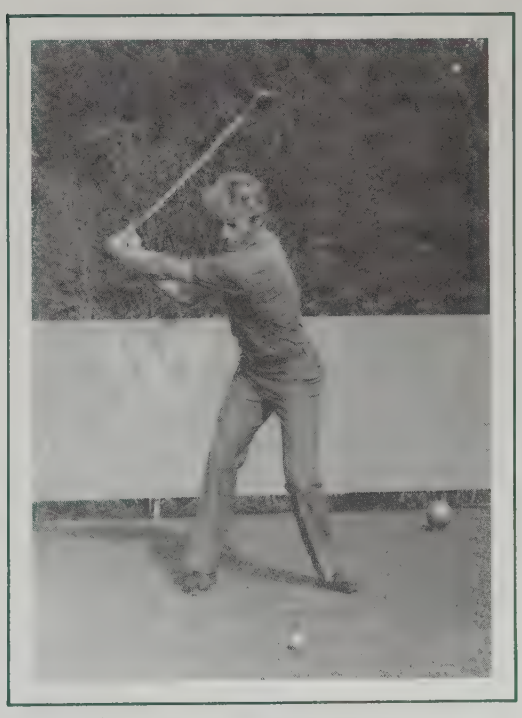
angular momentum and leverage in the swing. It might be a very effective grip for putting where clubhead velocity is not a factor, but it would violate a physical principle if applied to the full golf swing.

There are many people teaching golf in a variety of ways. In itself this is not wrong. Confusing, maybe, but not necessarily wrong. It has been like this for most of the game's history. We have had proponents of one style or another, either as teachers or players, who have drawn battle lines against all approaches that differ from their own. That is wrong! Even a casual study of the game's greatest performers should firmly convince the most stubborn advocate of a single swing style that individual differences do exist. The only absolute statement you can make about the swings of great golfers is that they are all different. Some look similar, yes. Several around which you could build a system of generalizations, definitely. All sharing common ground in principle, absolutely. But none actually the same. (Illus 3-2, 3-3, 3-4)

These practitioners of a certain method usually offer a stable of stars as final evidence that their way is the best way, or maybe even the *only way.* To support their contentions and reinforce their beliefs, they argue that their method has worked for them and their pupils, particularly those who were successful and came back. (Failures have a convenient way of disappearing.) This type of logic leads to the conviction that anyone who arrives at a different conclusion through another approach has to be wrong...or, at least, must have an inferior method.



Illus 3-3
Calvin Peete, another style.



Illus 3-4
Bernard Langer, yet another approach.

This position isn't hard to understand. It's a human failing. We can only subscribe to what we know, and we can only know what we have experienced. No one can live long enough to have experienced everything, nor can he place himself in another's body and mind so as to appreciate fully what the other fellow is experiencing. Consequently, there will always be divergent views on what constitutes "rightness" in an activity such as the golf swing where "right" is measured only by result, not by style.

Don't be misled into thinking that a rigid single-method approach to teaching is ineffective. On the contrary, it is sometimes very effective since it leaves no room for doubt, and doubt is devastating to the golf swing.

But the success of a rigid approach has a very strong condition attached. It works, providing...providing the student happens to fit the system. Some methods find great success with muscularly weak, inflexible or elderly people but fall short of fully helping the young, strong and supple player. Other approaches lean heavily on a student's having the powerful hands or the great timing of a trained athlete.

Why should the student have to fit the method? Can a 6'3" high-school miler copy the style of a 5'9" world champion in that event? He could try, but he probably should find a better model. (Illus 3-5)

Having a teaching procedure or method is a sign of an organized instructor. The good teacher has a method; the great teacher has many. The good teacher prescribes; the great teacher diagnoses, evaluates the pupil, then prescribes. *Recognizing individual differences in students makes teaching an art.* So let's talk about a teaching model which acknowledges this, one in which method does not transcend result. A model, not a method. A model under which any method could operate. A method dictates; a model explains. The proposed model offers the teacher an overview of the cause-and-effect problem facing all golfers and then encourages the teacher to develop methods which can minimize or eliminate those problems. Three levels of priority in understanding the golf swing are presented:

- **LAWS**
- **PRINCIPLES**
- **PREFERENCES**

Each is defined for use here in the following manner:

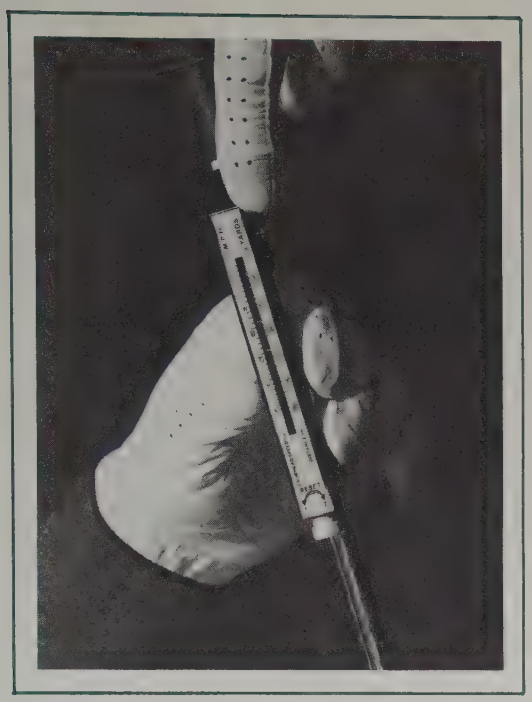
LAW:
is a statement of an order or relation of phenomena that so far as is known, is invariable under given conditions.

PRINCIPLE:
is a first cause, or force. It is a fundamental of high order which must be dealt with and which in this model, has direct relation to and influence on LAW.

PREFERENCE:
is the choice one makes based upon liking better some particular approach, method, device, etc., over all others. To be valid in this model, it must relate to PRINCIPLE.

Illus 3-5
The greatest challenge in teaching is the recognition of individual difference and adapting the message to fit the student. Can the student swing like the teacher? In principle yes, in preference, probably no.
Photo courtesy of International Golf Research

Illus 3-6
Clubhead speed is a law in this model and the most critical factor in producing distance. The professional can objectively demonstrate it by...



Illus 3-7
...being able to show the student a number as convincing evidence. (Gauge is a Swing-O-Meter™.)

When we speak of Law in the model, don't infer that Law deals directly with the golf swing. It doesn't. Law here refers to the physical forces which are absolutes in influencing the flight of the ball. *There are no absolutes in the golf swing, only Principles. Absolutes are reserved for ball flight, that's why they are called Laws.* In the previous chapter we dealt with cause and effect, the factors influencing Distance and Direction. The following five factors are the Laws in this model. The Ball Flight Laws (assessed at the moment of impact) are:

1. **SPEED**
   The velocity with which the clubhead is traveling. Speed influences the distance the ball will be propelled, as well as the trajectory and shape of the resulting shot. (Illus 3-6, 3-7)

2. **CENTEREDNESS**
   The exactness with which the ball makes contact on the face of the club relative to the percussion point or "sweet spot." Contact could be either on the center, fore (toe), aft (heel), above or below that "sweet spot." (Illus 3-8)

3. **PATH**
   The direction of the arc described by the clubhead in its travel away from and then back toward the target. Its line of travel at impact is one of the primary factors influencing direction for a full shot. (Illus 3-9)

Illus 3-8
The centeredness of ball impact is one of the Ball Flight Laws which influences distance.

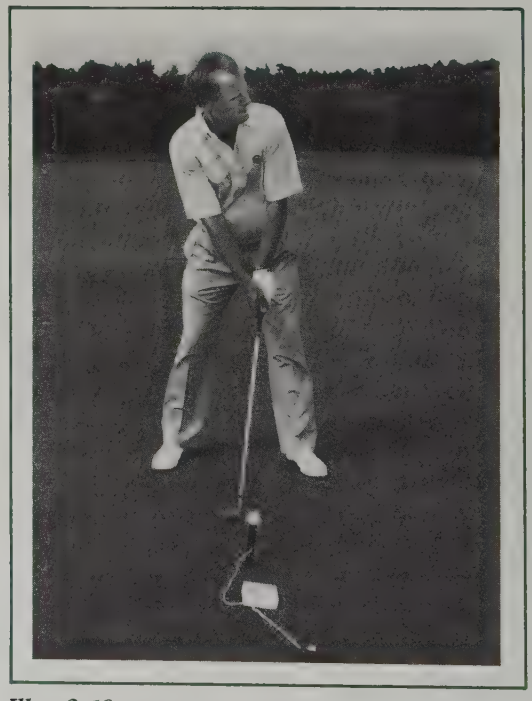
Illus 3-9
The clubface *angle and the* path *of the swing combine to produce the ball's direction. Here, the professional, with the aid of a Shot Maker, shows the student how the two factors, when combined, produce ball flight shape.*

4. **FACE**
   The degree at which the leading edge of the clubface is at right angles to the swing path. It will determine the accuracy of the ball's flight along that line, or produce a left or right curve away from that line.

5. **ANGLE OF APPROACH**
   The angle formed by the descending or ascending arc of the clubhead on the forward swing in relation to the slope of the ground. Due to its influence on the ball's spin rate, the trajectory and the distance the ball travels will be affected. (Illus 3-10)

Obviously, there are equipment factors such as clubface loft, construction of the ball, material of the hitting surface, etc., which will influence the distance and direction of the ball's flight. Environmental conditions such as temperature, humidity, wind, terrain and altitude also have an effect. There are also psychological elements which can influence all five laws. But in this model, consideration is given only to the human physical factors and, specifically, those over which we have some control.

Ball Flight Laws rank as the first priority because they are absolute rather than arbitrary. They work every time without fail. All golf teachers must deal with them. Regardless of teaching method, the instructor must come to grips with the Ball Flight Laws. The ball is not concerned with swing style. It responds to being struck without any prejudice toward the striker. It doesn't ask what particular swing method is being used, nor does it care about one's handicap, club affiliation, sex, or age. The ball follows the basic Ball Flight Laws, whether the player uses an open or square stance, has a fast or slow backswing, an overlapping or ten-fingered grip, a firm or cupped wrist, emphasizes leverage or centrifugal force as the primary source of power. Yet, all these could have an important influence on the flight of the ball.



Illus 3-10
The Angle of Approach, or steepness of descent, is one of the five Ball Flight Laws... being flattened here with the help of a learning aid.

Principles

There are fundamental considerations in the swing which have a direct bearing on a player's application of the Laws. In this model they are labeled "Principles"...Principles of the Swing. Whereas the Laws are irrefutable and absolute (at least as absolute as we can be in this relative universe), Principles reflect some subjective judgment on the mechanics of the swing.

Listing these elements does not mean the list is all-inclusive. The reader may feel there are additional items needed to improve the model. In fact, this present list of Principles contains an additional two (Connection and Impact) from the original model constructed in 1973. The Principles are divided into two categories: Pre-Swing and In-Swing. The Principle is listed followed by a description of the Principle, its primary influence on either Distance or Direction and its effect on one or more of the Laws. The Pre-Swing Principles are:

1. **Grip** (Placement, positioning, pressure and precision related to applying the hands to the club.)

   Primary Influence — Direction

   Effect

   Grip has the greatest influence upon *clubface position.*

   1. *Placement* (how far up or down the shaft the hands are placed) can alter the club's effective length.
   2. *Positioning* (the clockwise or counterclockwise rotation of the hands on the grip) by altering the hands a half inch counterclockwise from normal on the grip can cause the face to open enough for a 30-yard slice.
   3. Grip *pressure* (the amount of squeezing) influences timing, speed and control.
   4. *Precision* (taking the same grip each time) is critical for consistency.

2. **Aim** (The alignment of the clubface and body in relation to the target.)

   Primary Influence — Direction

   Effect

   Aim is one of the most influential yet violated principles. Aim or alignment has a strong influence on producing the correct *path,* though it does not guarantee it. (Illus 3-11)

Illus 3-11
Aim is a principle not given enough attention by the student, so the teacher must reinforce the procedure.

3. **Setup** (A player's posture, ball position, stance, weight distribution, and muscular readiness.)

Primary Influence — Distance & Direction

Effect

Setup can influence *all five laws.* Ball position, for example, will affect the angle of approach and trajectory of the shot. A ball played forward in the stance reduces the angle of approach, adds loft to the face and results in a higher shot. A ball played farther back results in the opposite. Similar examples can be given for each part of the setup.

4. **Swing Plane** (The tilt and direction of travel of the inclined plane made by the clubshaft.)

Primary Influence — Direction

Effect

The swing plane is determined by the angle of the clubshaft relative to the ball and to the ground. The swing is in plane when, during the forward swing, an extension from the butt end of the club would intersect a line drawn through the ball to the target. Plane determines *path.* If the butt of the club points outside the intended flight line, the clubhead will travel from inside to outside. If it points inside, the swing will be from outside to inside. Plane also influences trajectory. It can be on a flat, medium or upright approach angle and still be "in plane." The right forearm position strongly influences the plane. (Illus 3-12)

5. **Width of Arc** (The degree of extension of the arms and hands away from the center of rotation during the swing.)

Primary Influence — Distance

Effect

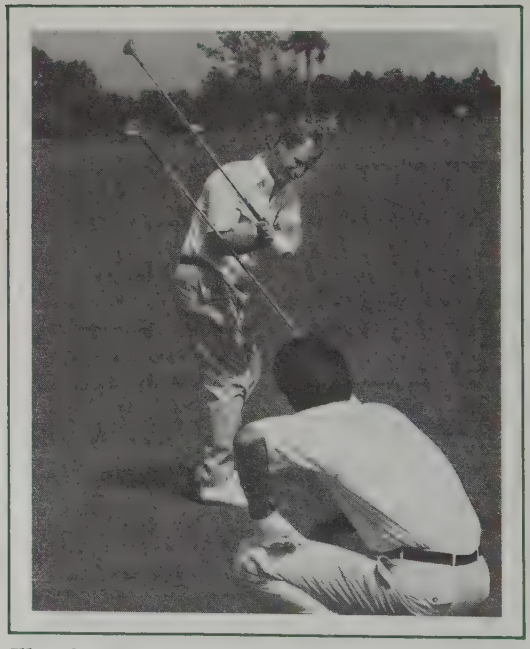
If the left arm is noticeably bent at impact, clubhead *speed* is reduced due to a shortened lever. This is similar to the way the middle portion of a spoke on a wheel travels slower than the far end of the spoke although the force from the center is equal.

6. **Length of Arc** (The distance the clubhead travels in the backswing and forward swing.)

Primary Influence — Distance

Effect

A short putt needs only a short backswing. On a 20-yard pitch shot a longer swing than on the putt is required but not a full swing. Length of backswing is a contributing factor to swing pace or *speed* and therefore, distance. If the arc length is shortened in the follow-through that's a good indication of deceleration at impact. (Illus 3-13)



Illus 3-12
The club is "on plane" when an extension of the butt end of the shaft will pass through the ball on the baseline as the swing is continued forward.

7. **Position** (For a right-handed player, the relationship of the back of the left arm and left wrist to the face of the club and swing plane when the player reaches the top of the backswing.)

Primary Influence — Direction

Effect

By either cupping or bowing the left wrist, one can dramatically influence *clubface position.* The simplest style mechanically is to allow the wrist to cock but to keep the left hand and wrist flat throughout the swing. This, however, is not physically possible for every golfer, nor is it desired by all.

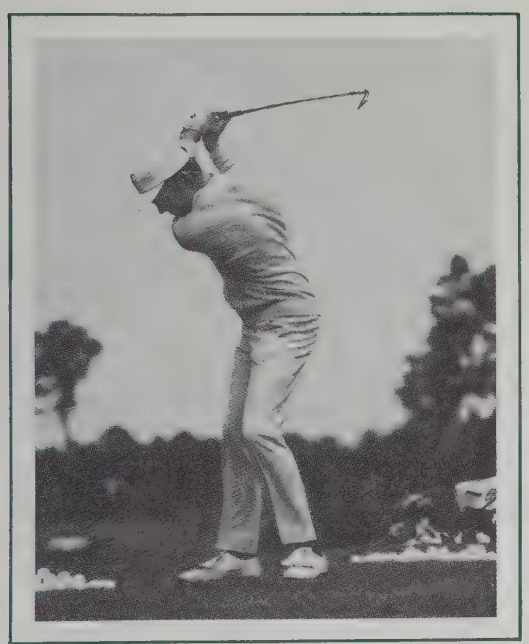
8. **Lever System** (The combination of levers formed by the left arm and club during the backswing.

Primary Influence — Distance

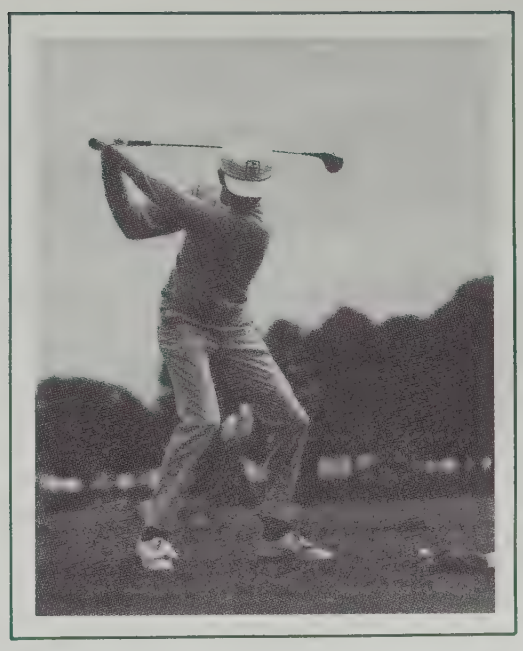
Effect

If one swings the club away from the ball without cocking the left wrist at all, it is a one-lever swing. By adding a second lever through wrist cocking the potential *speed* is substantially increased. (Illus 3-14) (f 3-1)

f 3-1 *Actually, there are several systems of levers operating in the golf swing, but the primary system incorporates the arms and club.*



Illus 3-13
The Principles of Arc Length and Arc Width, as well as Swing Plane and Position, are vividly demonstrated here. (Bobby Cole)



Illus 3-14
Another principle, the Lever System, clearly showing the preference of two primary levers, the left arm and the club. (Bobby Cole)

9. **Timing** (The proper sequence of body and club movement which produces the most efficient result.)

Primary Influence — Distance & Direction

Effect

Whether or not the backswing develops in this order, 1) hands, 2) arms, 3) shoulders-trunk, 4) hips, 5) feet-legs, or not, the forward swing should return, 5, 4, 3, 2, 1 in sequence. When it does, this sequential link action summates and maximizes the forces for the greatest possible *speed* and power. The timing of the swing sequence also influences the *path* the clubhead takes to the ball. (Illus 3-15)

f 3-2 The center of the swing arc is approximately the left armpit.

10. **Release** (Allowing the arms, hands, body and club to return to and through the correct impact position while freeing the power created in the backswing.)

Primary Influence — Direction

Effect

The momentum exerted by the club will cause the arms and hands and body to make a natural release unless there is interference from undue muscular tension or a premature application of the wrong body part. Attempts to strike excessively hard cause hand and forearm tension, left wrist breakdown or loss of body/arm relationship. Muscle tightness inhibits a natural release and forces the clubface to stay open or blocked, whereas left wrist breakdown results in loss of *face position* control, producing both hooks and slices.

11. **Dynamic Balance** (The appropriate transfer of weight during the swing while maintaining body control.)

Primary Influence — Distance & Direction

Effect

Good players utilize the motion common to all striking and throwing actions; moving from the rear foot (right foot) to the forward foot (left foot) in delivering the blow. Staying on the rear foot reduces power delivered to the ball and alters the path and arc of the swing.

Illus 3-15
Showing several principles: Arc, Width, Timing, Dynamic Balance, Plane, etc. The preference for Timing is the delayed hit. (Bobby Cole)

Illus 3-16
The circled area identifies the location of the swing center for the arms and center of rotation for the upper body.

12. **Swing Center (Rotational)**
A point located near the top of the spine around which the upper body rotation and swing of the arms takes place. (Illus 3-16) (f 3-2)

Primary Influence — Distance & Direction

Effect
Technically, the golf swing is an ellipse, but it may be easier to relate to the student by referring to it as a circle. All circles have centers. When the center of rotation moves, the arc of the circle moves, and striking the ball consistently in the *center* of the clubface becomes more difficult. The shorter the shot, the more constant the swing center should stay. Additional lateral freedom can be allowed as greater power is sought, but movements that are up and down, away from or toward the ball are discouraged.

13. **Connection** (Establishing and maintaining the various body parts in their appropriate relation to one another in the setup and during the swing. The opposite of separation.)

Primary Influence — Distance & Direction

Effect
To produce an effective, properly timed link action, the body parts must maintain their correct positions relative to the adjoining part. They must fire in sequence to stay connected. They should also start that way. For example, if in the address the player reaches out extensively for the ball, he partially separates the major power source, his body, from his arms. He is not properly connected. Thus, the sequencing of motion and consistency of that motion would be negatively influenced, causing a loss of *speed* and *centeredness*.

14. **Impact** (The position of the body and club at the moment the clubhead delivers its full energy to the ball.)

Primary Influence — Distance & Direction

Effect
There is only one moment of truth in the swing...Impact! The *clubface* must be squared at this moment while the *path* is to the target if the ball is to travel there. It is the moment when the maximum speed should be reached and the center of the clubface is contacting the ball from the desired angle. (f 3-3)

"The point is that it doesn't matter if you look like a beast before or after the hit, as long as you look like a beauty at the moment of impact."

Seve Ballesteros

f 3-3 The 13th and 14th Principles, Connection and Impact, have been added to the original model.

Preferences

The third and final level of priorities after Laws and Principles is the level at which the teacher most often works. It is labeled Preference, the teacher and pupil's choice of swing fundamentals that constitute style. Listed below are two examples of how the three levels of Laws, Principles and Preferences work.

Example A

Law: *Speed*

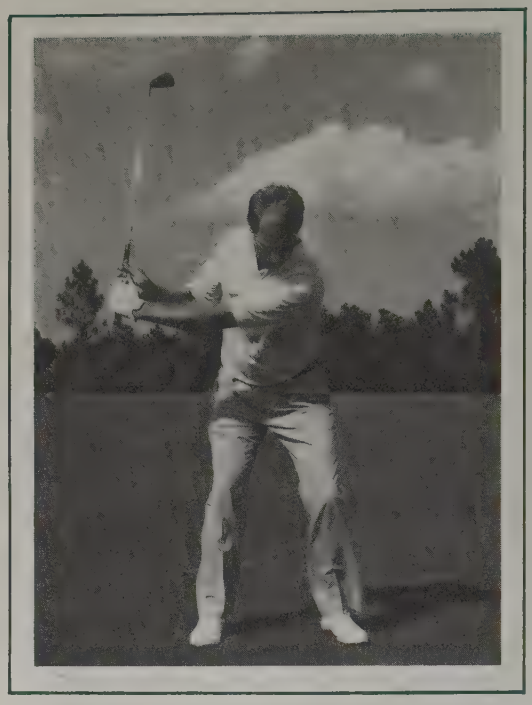
Principle:

Lever System: When one transfers from a one-lever swing (which would occur if he tried to swing the golf club with no wrist cock) to a two-lever swing which is created by the left arm and club when the wrists are allowed to cock. The potential speed is then multiplied by approximately 1.8 times.

Preference:

If more than one lever in the left arm and club relationship is needed, the question of preference is: where should the player create this second lever, or cocking of the wrists? Early? In midswing? At the top of the swing? On the downswing? Or even before the start of the backswing? (Illus 3-17, 3-18, 3-19) That's a Preference.

The ball doesn't care where the second lever is created but the pupil might. That's where the teacher has to make a critical judgment. He must evaluate the assets and liabilities of his pupil and give him the *Preference* that works best which relates to the *Principle* that influences the *Law.*



Illus 3-17
The hinging or "cocking" of the wrists can occur early in the takeaway (an early set).

Example B

Law: *Face* (squareness of the clubface)

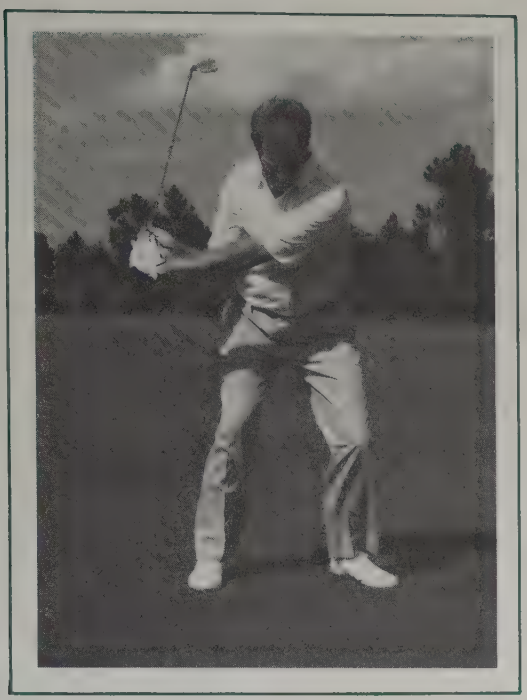
Principle: *Grip:* Grip is the single most important principle influencing the club's face position.

Preference:

Should the pupil be given a three-knuckle grip? Two-knuckle? One-knuckle? Overlapping? Interlocking? Ten-fingered? Cross-handed? Strong pressure? Light Pressure? Again, the answer will depend on the student. Some experimentation might be necessary to find the right combination of grip elements which produce the desired ball flight. The teacher may have an overall preference but should be flexible enough to adjust if the pupil responds better to a grip position other than the one the professional personally prefers.

The decision on grip selection should consider the student's strength, flexibility, natural arm hang, hand size, the speed he can generate and desired ball flight. The popularity of a stronger (closed-face) grip position for some PGA Tour players should indicate that there is more than one choice which can produce excellent results. Again, select the *Preference* that works best which relates to the *Principle* that influences the *Law.*

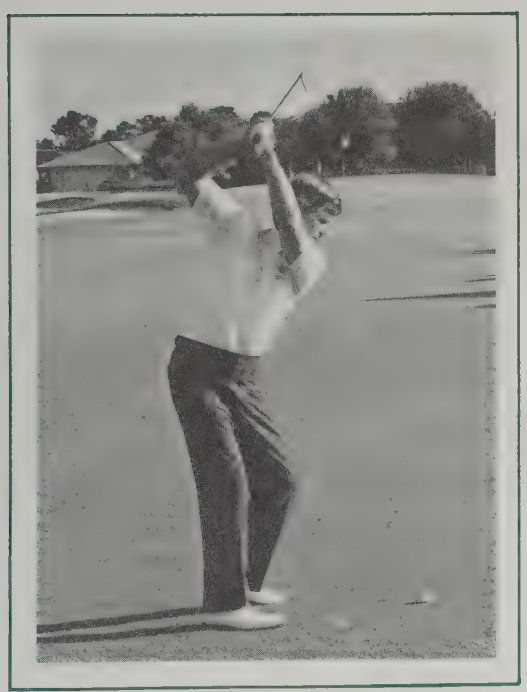
Illus 3-18
A midswing set.



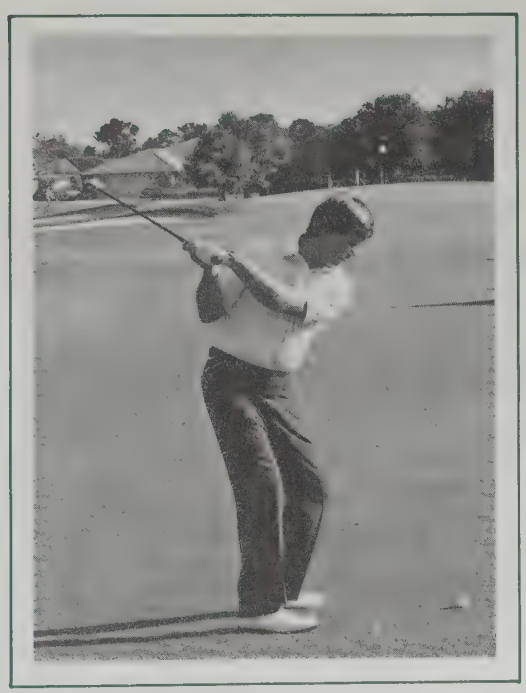
Illus 3-19
The wrists can be further set on the forward swing.

When one gets into the Preference category which determines one's style the possibilities are limitless. Consider for a moment which of the following is correct, to have: shoulders aimed left, toward or to the right of the target? Stance open, square or closed? Weight back on the heels or forward at address? Favoring the left or right side? Ball position, variable or standard? Address, relaxed or taut? Flat, medium or upright swing plane? (Illus 3-20, 3-21) Bent left arm or straight at the top of the backswing? Short or long backswing? Left wrist cupped flat or bowed? Face open, square or closed to the tangent of the arc? Forward swing initiated with feet, knees, legs, hips, arms, hands? Is the hip movement lateral, circular or both? Do the forearms rotate to provide release or is it the wrists, both or neither? Where is the weight distributed during the swing? Does the left knee straighten on the downswing or stay flexed? Does the head move laterally? Does it move up or down? These are Preference choices.

Where the Laws are fixed in number (5) and the Principles reasonably limited (14), the Preferences could reach a staggering total. The point is, there are a great many techniques and combinations of techniques which can work. Ben Hogan could employ a particular grip, stance and swing quite different from Lee Trevino's, yet produce a ball flight that looks almost identical.



Illus 3-20
A player may swing upright and return on plane...



Illus 3-21
...or, he may swing flat and return on plane. Note that the clubface looks more closed in the flatter swing can may be equally square to the upright style.

Preference Variety and Alignment

Interestingly enough, those teachers who have developed a preferred style of teaching and are quite successful have aligned their Preferences in such a way as to make a pattern that is very workable. In their system, all their Preferences line up without contradicting each other. This is the key — compatibility. Mixing preference styles when applied to certain principles doesn't work. A player can't use Paul Azinger's grip coupled with Tom Watson's release. This is further reason why we sometimes note a strong difference of opinion among experts on the golf swing over what appear to be clear-cut fundamentals. Because once the player adopts a particular grip style or position at the top, it will dictate several of the moves on the way down and through the shot. The conclusion is, when comparing widely varying styles, each may be right. The test is, *what works for the pupil?*

A well-conceived concept of teaching will include a repertoire of Preferences aligned in a rational method by an instructor who knows when to apply a specific method to a specific individual. Combine that wisdom with the ability to communicate and the talent to motivate and you have more than a "great teacher." You have the makings of a "master teacher."

Above all, recognize that the swing may be simple in theory but the machine which performs it, the human being, is very complicated. The greatest challenge to the teacher, therefore, becomes the recognition and treatment of individual physical and psychological differences in the pupil. That is where the choice of Preference becomes critical.

The Complete Model

Golf teaching is not a pure or exact science. There is no single answer, no set solution. We do not have all the answers, far from it. Yet, through attempts like this manual we are getting closer. We must keep searching for new and better ways. But while searching, we must infuse our own personality and method into what will become a uniquely individual, yet flexible, approach to teaching the golf swing. Using this model can be an effective guide.

"This is my way. What is your way?
The way *doesn't exist."*

(Nicci — famous philosopher)

"We don't have to force it (the swing) to fit the model. The 'art of golf' lies in allowing your swing to follow the model."

Alastair Cochran and John Stobbs, authors of "The Search For The Perfect Swing."

The complete listing of the three levels follows:

Ball Flight Laws

1) Clubhead speed
2) Centeredness of contact
3) Clubhead path
4) Position of clubface
5) Angle of approach

Principles

1) Grip
2) Aim
3) Setup
4) Swing plane
5) Width of arc
6) Length of arc
7) Left wrist position
8) Lever system
9) Timing
10) Release
11) Dynamic balance
12) Swing center (Rotational)
13) Connection
14) Impact

Preferences (Examples)

Early wrist cock
Two-knuckle grip
Outside take away
Flat backswing
Cupped left wrist
Left toe out
Fixed center
High hands
Slow back
Open stance
Lateral slide
Light pressure
Bent left knee
Extended arms
Chin behind
Weight forward
Shoulders closed
Etc., Etc., Etc.,

Using The Model

The model (Laws, Principles and Preferences) is not for the student, it's for the teacher. Explaining to a beginner fourteen principles in detail as a teaching method would not be an effective way to communicate how to swing a golf club. On the contrary, it may only confuse the pupil. The teacher should select or group certain elements on which to focus and then introduce them one at a time. Frequently, performing one principle correctly may cause other elements to be performed correctly as well. For example, if the teacher selected from the in-swing principles, *dynamic balance, plane, position* and *aim,* other principles such as *timing, release, lever system, impact, arc length, connection* and *arc width,* may all fall in place. Dealing with four is much simpler for the student than fourteen. However, if the player's *rotational center* should rise in the foward swing, then that additional principle would have to be dealt with. One professional, while acknowledging the fourteen principles in the model, simplifies the approach by saying, "You only have to

work on three things, 1) Preparation, 2) Backswing to the top, and 3) Forward Swing to the finish." He does this knowing that his selection actually looks like this:

1. *Preparation* — Grip, Aim, Setup (Illus 3-22)
2. *Backswing* — Dynamic Balance, Swing Center, Arc Length, Arc Width, Plane, Position, Lever System and Connection
3. *Foward Swing* — Dynamic Balance, Swing Center, Arc Length, Arch Width, Plane, Lever System, Timing, Release Connection and Impact.

But the three-point A, B, C concept in approaching the task is much more digestible for the student. So, Laws, Principles and Preferences combined is not a method. It does represent a framework (model) however, on which to build a method.

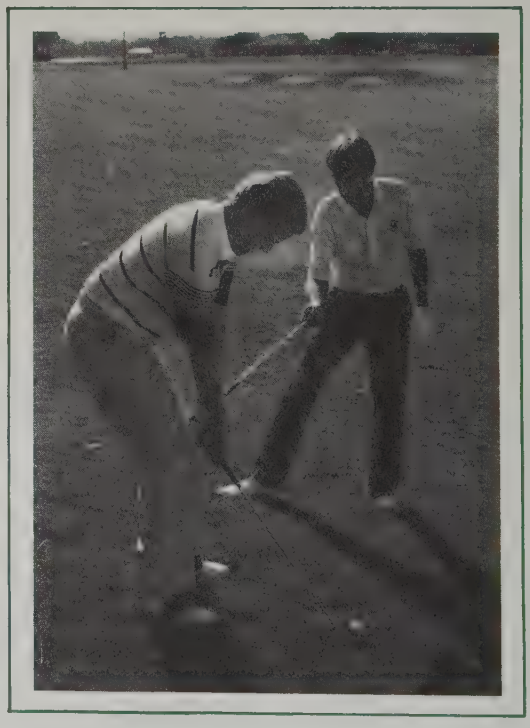
Developing a Method

A method is a system or way of doing something according to a defined plan.

When one hears the term "method," what generally comes to mind is a teaching system that produces a recognized style. In method teaching all students are taught the same preferences, and therefore, tend to look alike when they execute a shot. For example, the Paul Runyan method of chipping is distinctive in its look (hands rotated outward, more vertical shaft position, elbows flexed and no wrist cock) and can easily be identified whether performed by Runyan, Phil Rodgers or one of their students. A similar example could be given in the full swing with Jimmy Ballard or Paul Bertholy whose pupils' swings tend to look alike.

Method teachers make clear what is desired of the student and seldom vary from that course of action. This reduces confusion and tends to build confidence in the pupil. Strict "methodism" breaks down when there is the need for flexibility and it's not allowed.

Some teachers claim their method is the "no method system." "I teach people, not methods" is a frequently heard quote. This practice is commendable providing there is a core belief based on solid principles which are then matched with the preferences that fit the students' needs and abilities. The weakness in the "no-method method" occurs when there is no foundation of belief and the lessons resemble the "tip of the week" or "swing of the month" club.



Illus 3-22
The student is being helped with his preparation before the swing by getting his shoulder tilt correct for an uneven lie.

A Procedure

Whether one is a highly structured method teacher or a creative "find-a-way-that-works" type, there still is need for procedure. Procedure indicates that an organized, thought-out approach to conducting the lesson is being used. The content could be either a flexible approach to problem solving or a fixed "this-is-what-you-have-to-do" style. But the presentation should be organized. So a method is a system, and a procedure is a way to present the system.

The teacher should have a procedural format which results from experience and promotes the best results in the time allotted. In "school teacher terms," this format may be carried out by the use of lesson plans. When teaching groups, golf lesson plans are an absolute necessity in order to be organized. For private lessons, a result similar to that gained from lesson plans can be achieved by using a record keeping system demonstrated in Chapter 12. Group lesson or private lesson, there needs to be a procedure.

Here is a sample procedure.

1. Confirm the appointment by card or phone call whenever possible.
2. Have all your teaching equipment (visuals, learning aids, balls, etc.) ready prior to the lesson.
3. Be on time and meet your pupil with a smile and an enthusiastic manner.
4. Help your pupil feel comfortable by engaging him/her in brief conversation about any subject which might make for good rapport. If it's a first lesson find out about his/her background and success or lack of success in other sports.
5. Get to the pupil's reason for taking the lesson. What does he want to accomplish? Is this a one-time simple problem, or a long-time building endeavor. If the pupil wants major swing alterations and expects to get them in one lesson, explain that it takes *time and commitment* to change golf swing habits and those changes may require several sessions together. The student wants success and the teacher wants success. Failing to give the teaching a chance to "take" will only lead to failure. Set specific goals. Put a date on them. If the student's expectations are unrealistic, tell him/her. Be conservative in your goal estimates, while somewhat more optimistic for their long-term achievement.
6. Ask the student to hit some shots, short iron, middle iron and wood unless he/she is seeking help with only one specific club.
7. Have the student select a target so you can evaluate his/her alignment and accuracy.

8. Take a position to the right side of the student looking down-line. Ask the student to identify the target. Check the grip at the top of the swing. Notice left wrist and right elbow position and their influence on the backswing plane. Watch the body inclination from start to finish, the change of direction and plane on the forward swing. Look at the path the clubhead takes and check the grip and hand position at the finish.
9. Next, stand facing the student to observe the grip, ball position, stance width, posture, address and general motion of the body away from and toward the target.
10. Let the student hit enough balls so that he/she feels you have made a fair analysis of his/her technique even though you may have quickly decided on your course of action. Be certain!
11. Identify the positive elements of the student's swing, and compliment him/her by citing the strong points.
12. Point out the major technique problems and explain their effect on ball flight. Give a visual demonstration by reproducing the student's techniques and ball flight with your own swing or by showing the swing on video, or identifying swing faults in a still picture. *Do not dwell on the problem but rather on the solution.* It's critical that you emphasize the positive rather than focus on the negative. For example, "Don't cup your left wrist at the top of the backswing," does not present an image of the correct position. Whereas, "Keep your left wrist flat at the top of the swing," does.
13. Get the student to focus on the position or correction, not the ball flight. (Illus 3-23) Explain that three things can happen during a lesson. *First,* the pupil can experience almost *immediate improvement* if the problem is minor yet important, such as moving the ball position. *Second,* there may be *no immediate change* in ball striking success, even though the student feels he/she is doing what is expected. In this case, he understands the problem and is trying to do the correct thing but will need more practice before succeeding. *Third,* the pupil's present *performance may get worse.* This happens when the student can no longer do it the old way and is still unable to do it the new. He/she is caught in between; a very awkward and frustrating condition. The swing may be improving, but the scores can be worse because the ball is going new distances and directions and taking longer to find the hole. This is a critical time for the professional to offer encouragement and to point out the importance of patience on the pupil's part. Additional practice will help make the new swing more comfortable so it can function on the course under stress. Then the scores will improve.

Illus 3-23
An example of working on a good position. The correct position at the top of the backswing includes making a good upper body turn.

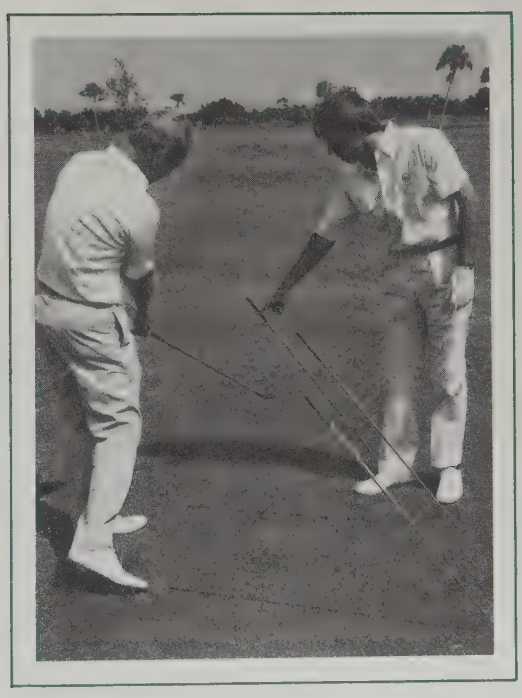
A Successful Formula

Research on the effectiveness of teaching methodology in school programs would support the following formula as a successful pattern for teachers of golf.

- Present the objectives clearly, keep the tasks simple and make them sequential. (Illus 3-24)
- Repeat and review frequently for reinforcement.
- Ask questions to determine pupil understanding and give feedback on performance or technique.
- Provide a defined practice schedule and expected outcomes of that practice.

It's a simple formula but dramatically effective. Read it again and relate it to your own teaching style. See Appendix 3 for more details on teaching effectiveness.

Trendy swing theories abound, and it's easy to get caught up in the latest swing craze. But if the professional has an understanding of the *Laws* of cause and effect in ball flight; a framework constructed of swing *Principles* which identifies key positions and movements; the development of a method or methods which reflect one's *Preferences*; and an organized procedure to present the material, then he/she will be prepared to teach in an orderly fashion.

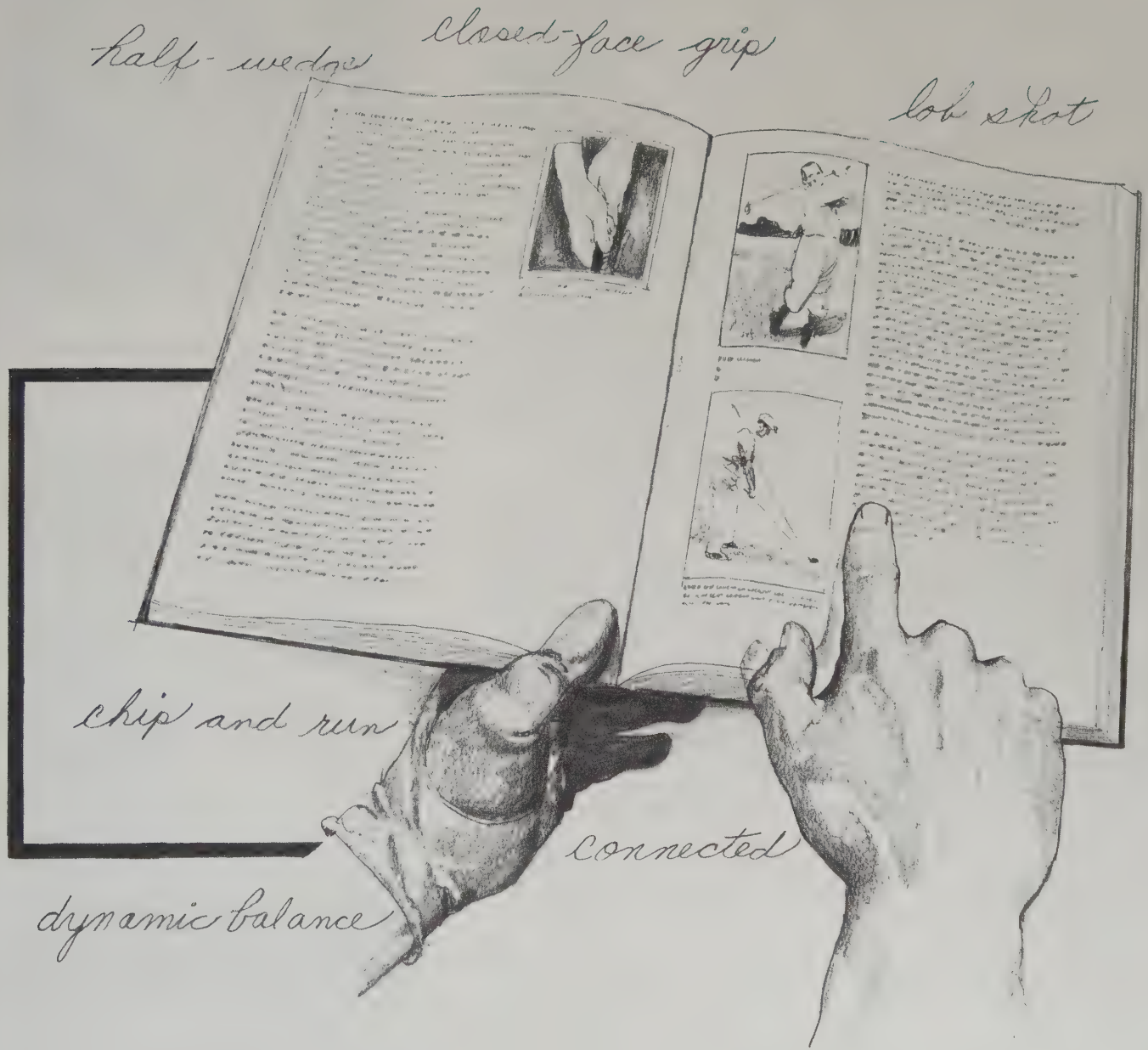


Illus 3-24
The task is made clear. Swing along the path created by the shafts.

CHAPTER 4

Terminology

For Teachers of Golf



CHAPTER 4

Terminology

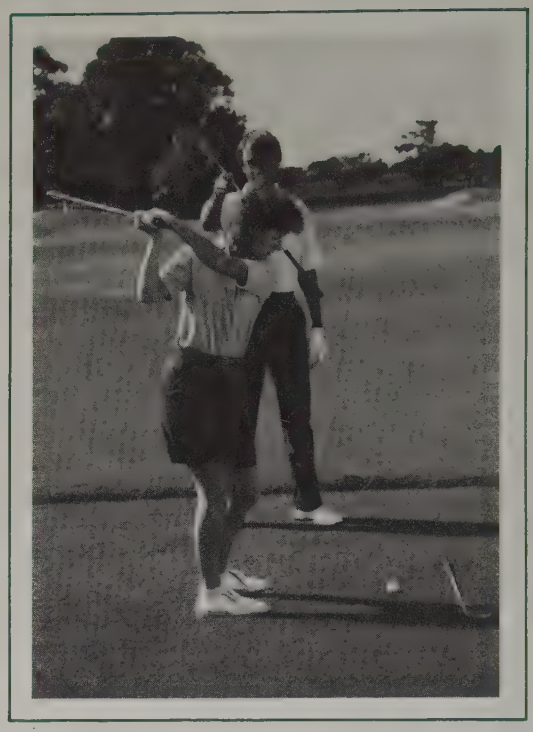
For Teachers of Golf

If the teacher is to communicate effectively to the pupil and golfers to one another, they need to be speaking a common language. Presently, much of golf's terminology is inaccurate, misleading and confusing. Take, for example, the common expressions "strong grip" and "weak grip" (which imply pressure but do not mean pressure); "coming over the top" (the top of what?); "coming off the ball" (is one standing on it?); "laying it off" (where is it to be laid, off of what?); (Illus 4-1) "hitting a shot fat" (fat?) "baseball grip" (which is not a baseball grip at all); (Illus 4-2) The list goes on. How well do these terms or expressions communicate? Ask a novice player what he thinks a "fat shot" or a "strong grip" means. For that matter ask half a dozen golf professionals to define "coming off the ball." More than likely you will get a blank stare from the amateur and six different answers from the professionals. It's time to shore-up our sloppy language, to get more precise; if not perfect, at least consistent.

For that reason, it is proposed that the following terms and their definitions be adopted by those teaching the game so their communication will be more effective. There are several recommendations for the addition or elimination of certain words or phrases. It is also suggested that multiple usages for a single meaning be reduced to one common preferred term. (f 4-1)

Additionally, there are some accepted terms which cause confusion, such as "grip." When one hears the word "grip" is it in reference to the handle of the club or the placement of the hands? It is not clear. Yet, use of the term "grip" as both *hands* and *handle* has such widespread acceptance that attempting change seems insurmountable... maybe it's not, but that one is left to future lexiconographers.

One serious consideration in proposing a lexicon of terms was to eliminate all references to laterality, i.e., left and right hand, foot or side. Instead of "after placing your left hand on the grip," it might read "after placing your target hand on the grip." In this way all text materials could be read by both right- and left-handed players without the usual instructions for left-handers to reverse all references to sidedness. It was a noble idea but in actual application became extremely awkward and confusing. The idea was dropped. So a reminder to all left-handers must again be apologetically offered. IN THIS TEXT ALL REFERENCES TO RIGHT-HANDED PLAYERS MUST BE REVERSED FOR LEFT-HANDERS.



Illus 4-1
The student has allowed the clubhead to "lie down" or be "layed off" so that it is no longer on plane.

f 4-1 The terms selected are not inclusive for all golf but rather are those pertaining primarily to instruction.

One of the biggest reasons we can't always translate the words *of our instructors into effective swings is we really don't understand what our instructor is saying."*

Joseph C. Dey

Illus 4-2
Using the term "baseball grip" is a misnomer since a baseball bat is gripped more in the palms and without the left thumb on the handle. This style is better labeled a ten-finger grip.

Golf Terminology

For Teachers

Acceleration:
A positive increasing change in the velocity of an object; in golf usually referring to the hands, arms or clubhead. A major objective of all swings from the beginning of the forward swing to impact.

Address:
The process the player goes through in positioning his body and the club for the stroke. From a rules standpoint it is when the player has taken his stance and grounded the club, or if in a hazard, when he has taken his stance.

Aim Line:
See Target Line.

Alignment:
The arrangement of the parts of the body and clubface in relation to the target. A part of aiming.

Angle of Approach:
The steepness of descent or ascent of the clubhead's forward swing which influences the trajectory and distance a ball will travel. (Should replace *Angle of Attack*)

Approach Shot:
A stroke made to or onto the putting green, or one made from the fairway in proximity to the green.

Axis:
A straight line around which a body rotates. (There are several axes in the golf swing. The one most frequently referred to is the spine, around which the upper body rotates.)

Backswing:
The motion of the club, hands, arms and body away from the ball creating the potential energy to be delivered downward, outward and forward through the ball.

Backspin:
The backward rotation of the ball on its horizontal axis influenced by the loft of the clubface, the angle of approach and the clubhead velocity. (A ball struck below its center with any club that has loft, even a putter, will have backspin in the airborne portion of its flight. The greater the backspin, the steeper the ball will fly and more quickly it will stop.) *(bite)*

Balance:
Equilibrium in a static position, i.e., at address (see *Dynamic Balance*).

Baseball Grip:
(See *Grip: Ten-Finger)*

Bladed Shot:
One that has a low "line drive" trajectory as a result of having been struck on the lower portion of the clubface on or above the ball's equator. (*skulled shot*)

Block:
To prevent or delay the rotation of the arms, body, wrists or club in the forward swing. (Illus 4-3)

Bobbing:
Lowering, then raising, or raising, then lowering, the swing center during the course of the swing.

Borrow:
The amount of compensation in aim taken on the putting green when the player has to deal with a side slope, gravity, grain, or the wind's effect on the ball.

Break:
The curved line a ball travels on the ground because of slope, grain or wind. Also "break" may refer to the bending at a joint, like a wrist or elbow.

Bump and Run:
A shot around the green deliberately played into a bank or hill to deaden the speed while still allowing the ball to bound forward. (*bank shot*)

Bunker:
A sandy or grassy hollow forming an obstacle on the course. (*Sand trap* is a term not in the rule book, *bunker* is.)

Carry:
The distance a ball travels in the air.

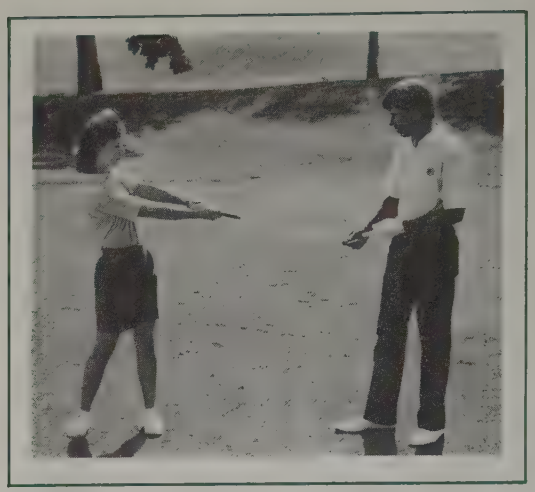
Casting:
A premature release of cocked wrists on the forward swing which causes the clubhead to arrive at the ball out of sequence ahead of the hands and arms. Also known as "hitting from the top." (*early release*)

Center of Gravity *(body):*
The point in the body (somewhere in the pelvic region) where the upper mass, lower mass, right and left sides all balance.

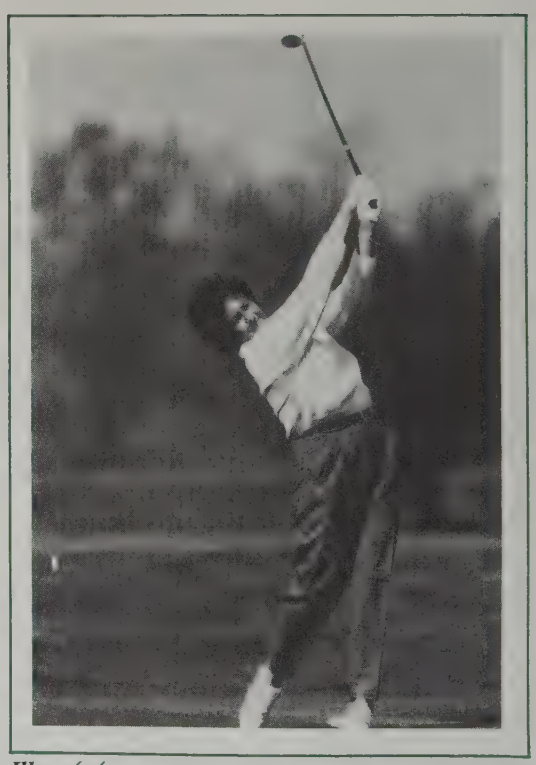
Centrifugal Force:
The action in a rotating body tending to move mass away from the center. The force one feels in the downswing that pulls the clubhead outward and downward extending the arms and encouraging the clubhead to take a circular path.

Center of Rotation:
The axis around which the body winds and unwinds, i.e., the spine. (Illus 4-4)

Centripetal Force:
The force that tends to move things toward the center, around which they are turning. Gravitation is an example.



Illus 4-3
Blocking is usually caused either by undue tension in the arms and hands or a misconception that the face is supposed to remain square to the target line after impact.



Illus 4-4
Hall of Fame player Nancy Lopez makes a big wind and unwind around her spine with enough force to create this extended follow-through.

Photo by Stephen Szurlej

f 4-2 A closed-face grip does not insure that result but it does encourage it.

Chicken Wing:
Folding or collapsing the left arm at the elbow in the forward swing so that it is bent, pointing away from the side of the body. (Generally considered a swing fault, however, it can be used effectively to stop clubface rotation such as in a bunker shot, pitch shot or putt.) (*block and fold*)

Chip and Run:
A low trajectory shot played to the apron, or green, or around the green, in which the roll is considerably longer than the carry.

Chip Shot:
A short, low trajectory shot played to the green or from trouble back into play.

Choke:
A psychological condition producing acute nervousness that keeps the player from performing up to his normal ability.

Choke Down:
To grip lower on the club for greater control. (should replace term *choke-up*)

Chunking:
A shot in which the clubhead strikes the ground before striking the ball, causing a partial hit, decreasing the distance the ball travels. (*stubbing, scuffing, dunching, sclaffing, heavy* and *fat*)

Clearing the Left Side:
Turning the hips to the left of the target so the arms may follow in sequence.

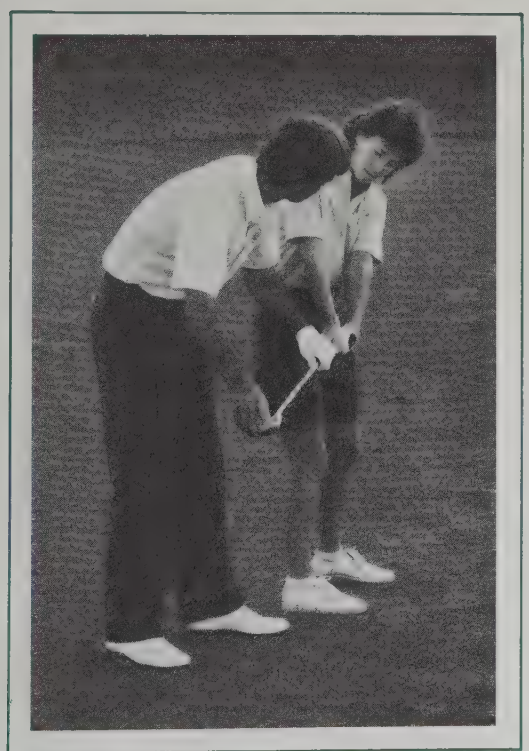
Cleek:
The name given to a wooden club (more frequently now a metal wood) with the approximate loft of a #4 wood. In golf's earlier days it was a light narrow-faced iron with little loft; also, a putter with extra loft.

Closed Clubface (at address and impact):
One in which the toe of the club is leading the heel, causing the clubface to point to the left of the target line.

Closed Clubface (swing):
Whenever the angle formed by the leading edge of the clubface is less than 90 degrees to the tangent of the swing arc. (Illus 4-5)

Closed-Face Grip:
An exaggerated clockwise rotational positioning of the hands when placed on the grip, i.e. left hand more on top the shaft, right hand more under. (To replace the term *strong grip.*) (f 4-2)

Closed Stance:
A positioning of the feet that has the right foot withdrawn from an imaginary line across the toes which is parallel to the target line.



Illus 4-5
When during the swing the clubface remains in a right angle position to a straight line which touches the swing arc (tangent), then the face is square. This one is closed to that tangent.

Closed to Open:
A description of the dynamics of the clubhead when the player hoods and closes the clubface in the backswing (pointing more to the ground) then reverses it to open coming through (pointing more to the sky). (*shut to open*)

Cocked Wrists:
A position in which the left wrist has laterally *flexed* (toward the left thumb side) and the right wrist is dorsally *hinged* (back of the right wrist toward the top of the forearm).

Cocked Wrists, Bowed:
A position at the top of the swing in which the wrists have cocked as previously described, but the back of the left hand has moved further away from the top of the left arm, (*palmar-flexion*), palm toward the underside of the forearm.

Cocked Wrists, Cupped:
A position at the top of the swing in which the wrists have cocked as previously described, and the back of the left hand has moved closer to the topside of the forearm. *(dorsi-flexion)*

Cocked Wrists, In Plane:
A position in which the wrists have cocked as previously described, and the back of the left wrist is flat in line with the forearm, and the right wrist is parallel to the left wrist. (*radial-flexion*)

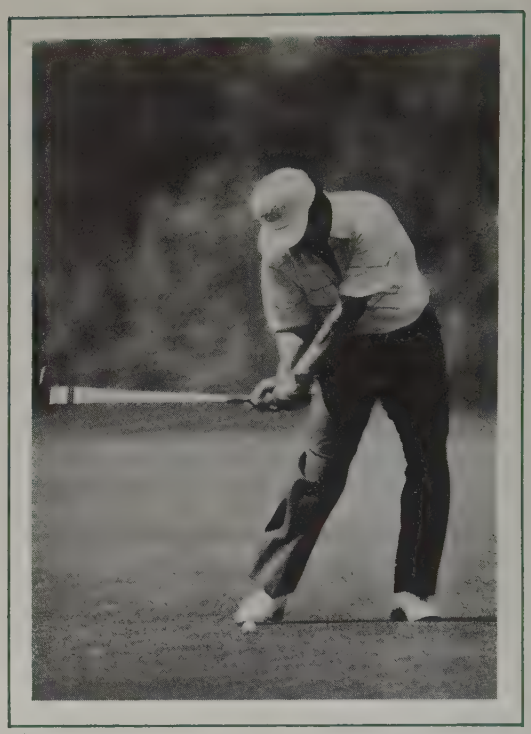
Coefficient of Restitution:
The relationship of the clubhead speed at impact to the velocity of the ball after it has been struck. A measure affected by the clubface and ball material.

Coil:
The circular windup or pivot of the body during the backswing which results in the upper trunk turning farther than the lower, creating a feeling of stretch.

Come Over the Top:
A move during the forward part of the swing which steepens the plane or arc and throws the clubhead path outside the target line prior to impact. Suggest replacing this term with "Outside-to-In" swing.

Connection:
Maintaining the various body parts in the appropriate proximity to one another before or during the swing so as to produce harmonious movement. The opposite of separation. (See *Timing*)

Conservation of Angular Momentum (COAM):
A law of physics which allows the player to produce large amounts of kinetic energy. As the body shifts its weight and turns toward the target in the forward swing, the mass (arms and club) is pulled away from the center into an extended position by centrifugal force. By temporarily resisting that pull as well as the temptation to assist the hit by releasing too early, one maintains the angle formed between the club shaft and the left arm and conserves the energy until a more advantageous



Illus 4-6
Lee Trevino demonstrates the conservation of angular momentum by retaining the tight angle formed by the left forearm and clubshaft until the correct moment in the forward swing.

moment. It has been referred to as "the delayed hit," "the late hit," "connection," "lag loading," "the keystone," or COAM, but when performed correctly may simply be called "good timing." (Illus 4-6)

Croquet Style:
A putting stance in which the player stands facing the hole using the putter in a fashion similar to playing croquet. Originally he stood astride the line but now, by rule, must stand beside it. (*side saddle*) (Illus 4-7)

Cross-Handed:
A grip style usually employed in putting, where the left hand is placed below the right on the club's grip.

Cuppy Lie:
When the ball is resting in a cup-like depression; usually a bare lie in between patches of grass.

Cut Shot:
A shot in which the ball is struck with a slightly open clubface while the clubhead path is traveling to the left of the target. This produces clockwise spin, as in a fade, and additional backspin for stopping action on the green.

Dead Wrists:
A term used mostly for shots on and around the green where the wrists do not cock back or release through, rather, they stay fixed.

Deceleration:
A negative change in the velocity of a moving object. In golf it refers usually to decreasing clubhead speed. It is a major error when occurring prior to impact. (*negative acceleration; quitting*)

Delayed Hit:
A golf term used to describe the Conservation of Angular Momentum (COAM).

Divot:
A piece of turf displaced by a golf club. It reflects a correctly descending swing when taken in front of the ball and is the effect of most good iron shots though not a requirement. Also, the hole left in the turf after the grass has been displaced.

Downswing:
(See *Forward Swing*)

Drag:
An aerodynamic force that resists the forward motion of an object. It influences clubhead speed and ball flight. Also a golf shot played that has additional backspin.

Draw:
A golf shot which curves slightly in flight from right to left. A small hook. The opposite of a fade.

Driving Range:
(See *Golf Range*)

Illus 4-7
PGA member Angie Albrego using a facing the hole croquet style of putting with an extended length putter.

Duck Hook:
An exaggerated hook that curves sharply and rapidly to the left. (*snap hook*)

Dynamic Balance:
Transferring the focus of weight appropriately during the golf swing while maintaining body control. (Illus 4-8)

Early Hit:
When a player prematurely releases angular momentum in the forward swing, causing a reduction of speed at impact. (*hitting from the top, throwaway*)

Effective Loft:
The actual loft of the clubface when it strikes the ball. Because of sole configuration, head design, hosel boring and the player's technique, the *built-in* loft can be varied, thus becoming *effective loft.*

Explosion Shot:
A shot made from a lie that is buried in a bunker in which the club digs and displaces a large amount of sand.

Extension:
Achieving the desired length of the left arm at impact and the right arm at post impact in the swing. (This position can be produced naturally by centrifugal force or willfully by applied leverage.) May also apply to positions at the top of the backswing. (*expansion; extended radius*) (Illus 4-9)

Fade:
A shot which curves slightly in flight from left to right. A small slice. The opposite of a draw.

Fanning the Face:
An exaggerated rolling of the clubface into an open position early in the takeaway.

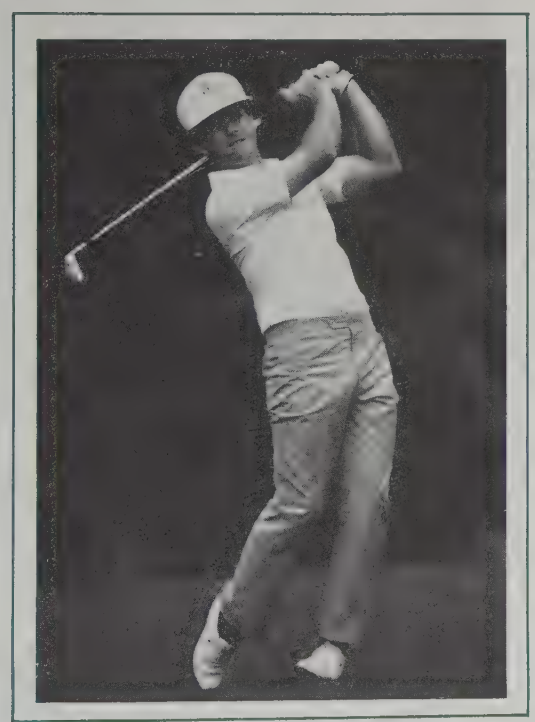
Fat Shot:
A shot in which the clubhead strikes the ground before the ball. (NOTE: Other shots denoting error are slicing, hooking, topping, skying, shanking, pushing, pulling, etc. "Fat" is not consistent in form nor is it particularly descriptive. Therefore it is suggested that it be replaced by the word *chunked shot* or *chunking.)*

Flange:
The projected portion on the sole of a club such as on the back part of a sand wedge or putter.

Flat Swing:
A swing which employs a less vertical, more horizontal plane than considered normal.

Illus 4-8
Adele Moore demonstrates a perfectly balanced finish, having transferred her weight from right side to left side during the swing.

Illus 4-9
Just as the left arm extends in the backswing the right arm extends in the forward swing.
Photo by Jeff McBride



Illus 4-10
The quality of a player's follow-through is a general reflection on the quality of what has gone on before. This Tom Watson finish reflects having made a good swing.
Photo by Jeff McBride

Flier:
A ball usually struck from long grass that has reduced backspin and therefore more distance. The probable cause is organic plant matter from the leaves of the grass which reduce friction on the ball and, therefore, spin. A similar result can be obtained when water or another friction-reducing substance is introduced to the clubface.

Flip Wedge:
A short, less than full wedge shot (similar to a half wedge) usually played to the green.

Floater:
A ball struck from deep grass which comes out slowly and travels shorter than normal due to heavy cushioning of the blow from excess grass between the ball and clubface. Opposite of a flier. ("Floater" is also a golf ball that will float in water).

Flop Shot:
A loose-wristed pitch in which the club is taken abruptly up on the backswing then dropped lazily and steeply down, sliding the clubhead underneath the ball.

Fluffy Lie:
A ball coming to rest on top of long grass presenting the potential for the clubface to slide markedly under the ball, giving it little impact and reducing distance.

Fly:
To hit a shot that completely carries over the intended target. Also, the distance one can carry the ball in the air.

Follow-Through:
The remainder of the swing once the ball has been struck. (In theory there can be no effect on the shot after the ball has left the clubface. In practice, focusing on a sound follow-through may positively influence what goes on before. (Illus 4-10)

Footwork:
The action of the lower half of the body (i.e. feet, ankles, knees, legs, hips) when making a golf shot.

Forward Press:
A movement usually with the hands and arms or some other part of the body which assists the player in starting the club away from the ball.

Forward Swing:
Once the backswing has been completed, the motion of the body, arms, hands and club in the opposite direction through the ball. This term, "forward swing," should replace "downswing" in golf terminology as it is semantically parallel ("backswing"/"forward swing") and directs the player in a more positive action toward the target, not the ground. (*downswing*)

Fried Egg:
A lie in a sand bunker where the landing of the ball has splashed the immediate sand away, leaving the ball resting in the middle of a crater.

Golf Range:
A facility where a golfer may hit balls to improve his swing. If it also includes a short-game practice area it could better be called a practice center. Golf range to replace the term *"Driving Range."* (f 4-3)

f 4-3 See PGA Constitution for a definition of a "Recognized Golf Range."

Grain:
The direction which the blades of grass grow and lie on the putting green. (Grain follows water runoff, sun, mowing cuts and prevailing wind direction.)

Grip (equipment):
That portion of the shaft of the club on which the player places his hands; the material which may be of leather, rubber or a synthetic.

Grip (technique/principle):
The placement, positioning, pressure and precision a player employs in applying his hands to the club.

Grip: Interlocking:
A method of placing the hands on the club which is distinguished by the lacing of the little finger of the right hand with the index finger of the left.

Grip: Overlapping:
A method of placing the hands on the club which is distinguished by laying the little finger of the right hand either over the left index finger or around the knuckle of the left index finger.

Grip: Reverse Overlapping:
A popular style of grip used for putting in which all of the right hand remains on the club and the left index finger of the left hand is overlapped across the fingers of the right hand. (Illus 4-11)

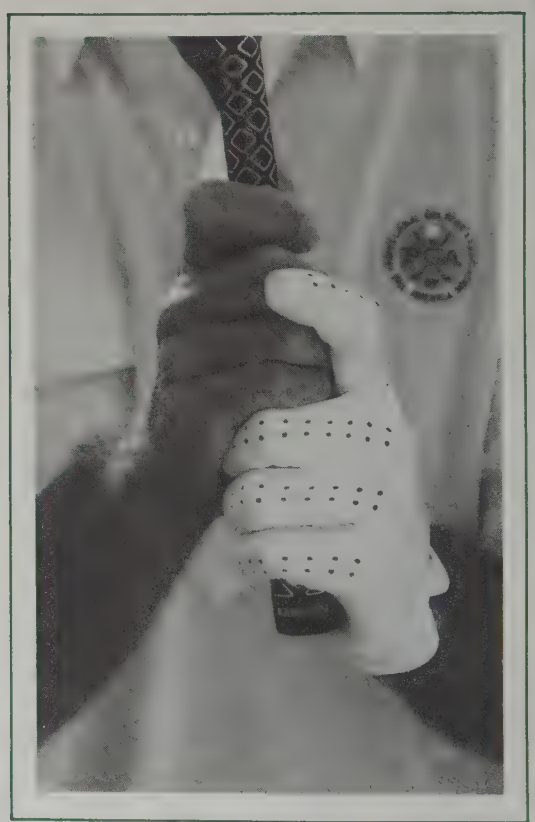
Grip: Ten-Finger:
A method of placing the hands on the club which is distinguished by the placement of all of the fingers and both thumbs on the club, with the hands abutting but not overlapping or interlocking. (*baseball grip, all finger*)

Groove:
To develop through practice a sequence of movements a pattern or path that produces consistent results in the swing. (Also, a linear scoring line on the clubface.)

Ground:
When referring to the club it is the process of setting the sole on the turf while addressing the ball.

Group Lesson:
An instructional session which includes five or more pupils with one or more instructors.

Half Shot:
A shot played with less than the normal length backswing and effort, designed to achieve around 50% of the regular distance for the club. (Illus 4-12)



Illus 4-11
The reverse overlapping grip puts the entire right hand on the club to encourage a better sense of touch from the dominant hand.

Heeled Shot:
One in which the ball is struck on that portion of the clubface which is between the hosel and the center of the face.

High Side:
Refers to the portion of the cup which is the highest on a sidehill breaking putt. Sometimes referred to as the "pro side." (The ball has a better chance to drop in from the high side due to gravity and is more frequented by the professional.)

Hitter:
A player using a style of striking the ball which employs considerable thrust or leverage to power the club.

Hooding:
Delofting the club by advancing the grip forward toward the target or reducing loft during the swing but keeping the face square to the target line. (It does not mean closing the face as is so often misconstrued. Although when closing the face, the club may be hooded as well.)

Hook:
A golf shot which markedly curves in flight from right to left.

Horizontal Axis (Ball):
An imaginary line running through the center of the ball in a horizontal plane. (Striking the ball with the clubface below this point causes it to be airborne. Striking above it will cause the ball to be topped.)

Hosel:
That part of the club which joins the clubhead to the shaft. (*neck*)

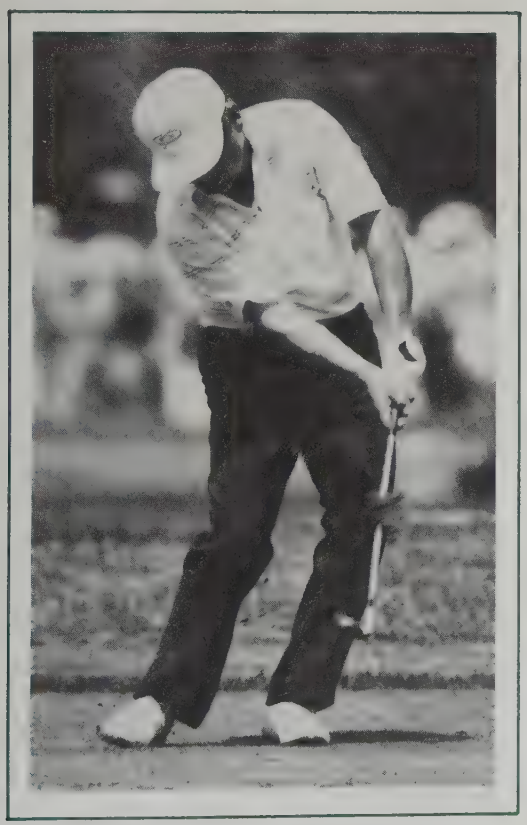
Impact:
The moment the clubhead, while in contact with the ball, transfers its energy to the ball.

Inside-To-In:
The swing pattern which produces straight, on-target shots — providing the clubface is square at impact and the ball is centerface hit.

Inside-To-Out:
A swing path in which the clubhead approaches the ball from inside the target line and after contact continues forward, crossing that line to the outside before coming around to the finish.

Intended Line of Flight:
See *Target Line.*

Kinesiology:
The scientific study of man's movement and the movements of implements or equipment which he might use in exercise, sport or other physical activity.



Illus 4-12
To produce reduced distances with a club a player may choose to play a "half-shot," or one that employs a shorter backswing and follow-through, as Lee Trevino does so well.

Kinetic Energy:
The form of energy associated with the speed of an object. Its equation is: KE = ½ mv^2; or kinetic energy = ½ x mass x velocity squared. (It is obvious from the formula that increasing clubhead velocity has more potential for producing distance than increasing the clubhead weight.)

Lag:
Playing a shot intentionally short of the target. (*lay-up*) (Also: see *Conservation of Angular Momentum*)

Late Hit:
A misnomer which attempts to describe the Conservation of Angular Momentum or the "delayed hit." If it were truly "late" the ball would go to the right as the clubface would not be squared.

Lateral Shift:
One of the movements of the body in the forward swing with the purpose of transferring the weight from over the right foot to over the left foot. It accompanies and can be the result of body rotation. (f 4-4)

f 4-4 There is no question there is lateral movement when the weight shifts from the right side to the left side. Some teachers would say, however, that the lateral movement is simply a response from winding and unwinding the body.

Lay Off:
Flattening the plane at the top of the backswing, causing the club to point left of the target and the face to be closed. Literally "laying the clubhead down" so it is no longer square or on plane.

Learning Center:
A complete golf practice and learning facility. Could include practice areas for full swing, short game, special shots such as uneven lies, putting, physical training, psychological training, equipment testing, video analysis, classroom, learning aids, and club fitting.

Lever System:
The skeletal system is composed of numerous bones which, in mechanical terms, act as levers. The two primary levers in the golf swing with which teachers most often deal are: 1) the left arm, comprised of the radius and ulna of the lower arm and the humerus in the upper arm, and 2) the club when the left wrist becomes cocked.

Lie (of the Ball):
The position of the ball after it has come to rest.

Lie (of the Club):
The angle the shaft makes with the clubhead as measured from the center of the shaft to a line extending tangentially from the lowest point on the sole.

Line:
The path the player intends the ball to follow on the way to the target. (Illus 4-13)

Line of Flight:
The direction the ball actually travels.

Illus 4-13
Getting the line by sighting from behind the ball seems to be the most effective method whether it be putting or a full shot.

Lob Shot:
A short, high trajectory shot that lands softly with little forward roll.

Loft:
The degree of pitch angle built into the clubface. Also, to lift a ball into the air with a club.

Long Irons:
Those included in the long iron group are #1, #2, #3 and #4.

Looking Up:
(See *Raised Swing Center)*

Loop:
The shape of the arc the clubhead makes when the backswing and downswing planes don't match. If the downswing plane is under (flatter than) the backswing plane it is an *inside loop.* If the downswing plane is over (steeper than) the backswing plane it is an *outside loop.* (Also, caddie slang for a round of golf.)

Loosened Grip:
Anytime during the swing when a player opens his fingers on the grip to cause some loss of control. The most common example would be opening the last three fingers of the left hand at the top of the backswing. (formerly referred to as a "Piccolo Grip.") (Illus 4-14)

Mechanics:
The technique elements a player selects and employs in making a golf shot.

Middle Irons:
Those included in the middle iron group are #5, #6 and #7.

Off-Green Putting:
A style of chipping which uses a low to medium trajectory club in a distinctly putting-like style.

Illus 4-14
Letting go at the top of the swing with the last three fingers of the left hand is a frequent cause of inconsistency in shot making.

One-Piece Takeaway:
An early portion of the backswing in which the arms, hands and wrists move away from the ball in nearly the same relation to each other as they were at address. The wrists may cock very slightly but neither fan nor hood the face. (Illus 4-15)

Illus 4-15
One style of takeaway that has been popular for at least half a century is the "one piece takeaway."

Open Clubface (at address and impact):
One in which the heel of the club is leading the toe, causing the clubface to point to the right of the target line.

Open Clubface (swing):
Whenever the angle formed by the leading edge of the clubface is greater than 90 degrees to the tangent of the swing arc.

Open-Face Grip:
An exaggerated counterclockwise rotational positioning of the hands when placed on the club. (Formerly, *weak grip.*)

Open Stance:
A positioning of the feet at address that has the left foot withdrawn from an imaginary line running parallel to the intended flight line.

Open-to-Closed:
A description of the dynamics of the clubhead when the player rolls the face open during the backswing and rolls it closed during the forward swing. (*open to shut*)

Outside-To-In:
When the swing path of the clubhead approaches the ball outside the target line, and then, after contact, crosses that line directly to the inside and around to the finish. The downswing plane with this pattern is invariably steeper than the backswing plane.

Pace:
The rate of movement in the swing. (Also, the speed of the greens.)

Paddle Grip:
The grip on a putter that has a flat surface along the top on which the player may rest his thumbs.

Path:
The directional arc in which the club is swung when viewed from above. Usually identified in the swing zone just prior to and after impact.

Pendulum Stroke:
A free swing from a fixed pivot point. In putting, a pure pendulum stroke could be with the hands and club swinging from the wrist joint while the arms are stabilized. A more common form is to use the arms and shoulders with the pivot point in the center of the chest.

Piccolo Grip:
(See *Loosened Grip*)

Pinch Shot:
A short shot around the green struck with a crisp, descending blow. (Most full iron shots when struck a descending blow are pinched to some degree.)

Pistol Grip:
The grip portion on the handle of a putter which has extra buildup at the top so that it fits the hand similarly to a small pistol handle.

Pitch-and-Run:
A short, lofted shot having more than a customary amount of roll after it lands.

Pitch Shot:
A high trajectory shot of short length, played with one of the more lofted iron clubs.

Pivot:
The movement of the body or a body part around a fixed axis. Most commonly used to describe the body turn around the spine in the full backswing. (*shoulder turn, windup, coil*)

Plane:
(See *Swing Plane*)

Plumb bob:
A pseudo-scientific method of determining the directions a ball will break on the green. It relies on judgement gained from sighting the slope while using a vertical reference line (the putter) as an aid. It does not take into account the green's speed. (Illus 4-16)

Plugged Lie:
A ball imbedded in its pitch mark.

Press:
To attempt to hit the ball harder than usual or try harder than normal.

Pre-Shot Routine:
A procedure which the player completes after selecting a club but prior to initiating the swing.

Private Lesson:
An instructional session which includes one pupil with one or more teachers.

Pronation:
An inward rotation of the hands toward the body's centerline when standing in a palms-facing-forward position. (The term pronation was inaccurately used for many years to describe the rotation of both hands through the impact area. In fact, one hand, the right, was pronating while the left was supinating. Obviously, it is impossible to pronate both hands through the shot.)

Pulled Hook:
A hook which starts to the left of the target and curves even farther to the left.

Pulled Shot:
A shot that travels on a relatively straight path but to the left of the target.

Pulled Slice:
A slice which starts to the left of the target and curves back to the right.

Punch Shot:
A low trajectory shot created by striking the ball while the grip end of the club is advanced well ahead of the clubhead so the club's loft is reduced.

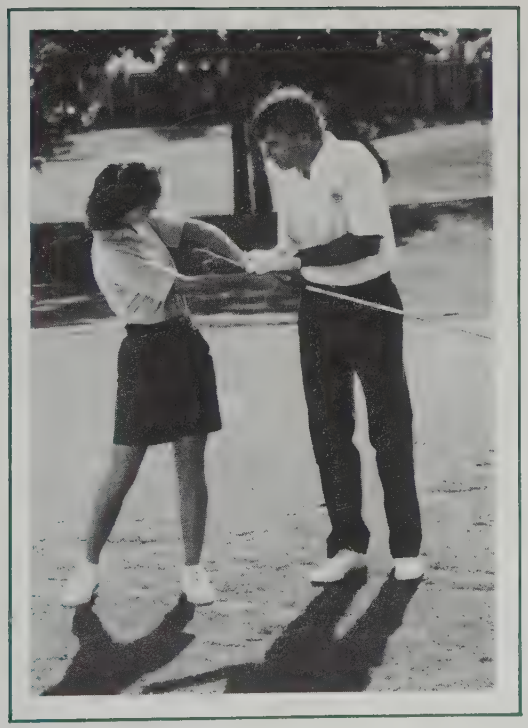
Pushed Hook:
A hook which starts to the right of the target and curves back to the left.

Pushed Shot:
A shot which travels on a relatively straight path but to the right of the target.

Pushed Slice:
A slice which starts to the right of the target and curves farther to the right.

Illus 4-16
The clubhead represents the plumb bob or weight which will hang vertically when held lightly between the fingers.

Illus 4-17
The release can be checked by noting the position of the toe when the clubhead reaches hip height in the forward swing. When the face is up it's blocked, toe up it's square, face down it's closed.



Illus 4-18
The left arm is out of position, having separated from its correct location nearer the left side.

Radius:
A term borrowed from geometry used to describe the distance between the center of the swing arc, (the middle of the left shoulder) and the hands on the grip.

Raised Swing Center:
Elevating the central area in the body (somewhere between the top of the spine and center of the neck) around which rotation takes place. What the novice frequently refers to as "looking up" and which results in a swing that is too high. (*changing the spine angle*)

Rap:
To putt the ball with a firm stroke.

Reading the Green:
The process of judging the correct path and pace to hole a putt. (This decision must consider all factors which might influence the ball on the way to the target, i.e., length of grass, type of grass, grain, firmness of the ground, slope, dryness or wetness, wind, the ball, the club, the technique.)

Recover:
To play from an undesirable ball location to one which is more advantageous.

Release:
Allowing or causing the body and club in the forward swing to return the clubface to square and to free the potential power created in the backswing. (Illus 4-17)

Reverse Weight Shift:
During the backswing, moving either the upper or lower part of the body in a direction opposite from that which is mechanically sound, i.e., forward (to the left) of the body's centerline rather than behind it (to the right).

Rhythm:
A harmonious movement in the swing with a regular and repeating pattern.

Scramble:
The attempt to recover from erratic play and produce effective results. (Also a form of competitive team golf play.)

Semi-Private Lesson:
An instructional session which includes two to four pupils with one or more instructors.

Separation:
When the body, arms and legs get out of sync or position and lose the desired relationship to their contiguous parts. (Also, may be the ball leaving the clubface.) (Illus 4-18)

Setup:
The mechanical procedure other than grip and aim prior to initiating a stroke. It includes positioning the body and clubface, alignment in relation to the ball and establishing the body's overall attitude or posture.

Shanking:
To strike the ball on the hosel of the club. Usually this causes the shot to travel sharply to the right but it could go straight or to the left as well. (*socketing, hoseling*)

Shape of Shot:
The ball's actual line of travel, i.e., left to right, right to left or straight.

Short Game:
That part of golf played near the green to include all types of shots that may be used to get the ball holed in as few strokes as possible, i.e., bunker shots, putting, chipping, pitching, and all special variations of these.

Short Irons:
Clubs included in the short iron group are the #8, #9 and pitching wedge. Consider the sand wedge as a specialty club.

Shut:
(see "*Closed*")

Sky:
To hit under the ball on the upper part of the clubface sending the ball high and a short distance.

Slice:
A ball which curves markedly from left to right.

Smothered Hook:
A hook that dives quickly to the ground, usually directly to the left, but may possibly start to the right. Caused by an exaggerated closed clubface.

Sole:
The bottom of the clubhead. (Also, the process of setting that portion of the club on the ground.)

Splash Shot:
A shot played from a good lie in a sand bunker in which the club bounces or splashes through the sand, cutting it from beneath the ball.

Spoon:
The earlier name for a lofted fairway wood, presently the #3 wood.

Spot:
To mark the position of a ball on the green before lifting it by placing a coin or small object at the back side of the ball.

Spot-Putting:
Using an intermediate target on the line to the cup, such as a discoloration of grass or ball mark, as an aiming point for the putt.

Illus 4-19
If the suspension radius length is altered markedly from address to impact, then some other compensating move would have to be made in order to achieve consistent centerface hits.

Square:
A term with several uses in golf. May refer to the clubface when it is positioned at right angles to the target line; to the stance when a line drawn across the heels is parallel to the target line; to the shoulders, hips and knees in aiming when they are also parallel to the target line; to center-faced contact with ball when it is struck. Also when the club is at 90 degrees to the tangent of the arc, anywhere on that arc.

Stance:
The position of the feet when the player addresses the ball.

Steer:
An exaggerated attempt to control the shot which results in losing the desired distance and/or direction.

Straight-Faced:
An iron club with little or no loft on the face, or a wood without normal bulge and roll.

Strong Grip:
The currently used expression to describe the exaggerated rotation of the hands in a clockwise (toward the right shoulder) position when placed on the club. (Suggest this be changed to *Closed-Face Grip:* This is more descriptive, does not imply tight pressure, and is parallel in its application to other golf terms such as "closed stance.")

Supination:
An outward rotation of the hands (thumbs turning out) away from the body's centerline when standing in a palms-facing-the-body position. In the golf swing it is the right-hand rotation motion on the backswing and the left's on the forward swing.

Suspension Radius:
The distance when measured from a point at the base of the neck to the ball that is used as a reference to determine the spine angle inclination and whether or not the swing center has moved. (Illus 4-19)

Swaying:
A general description of exaggerated lateral body movement in the backswing or forward swing.

Sweet Spot:
That point on the clubface where the club does not torque when struck with a sharp object. (To check, hold the club loosely at the top of the grip between two fingers. Let gravity hang it vertically. Then poke the face at various points with the leading edge of a coin until you find the spot which gives no feeling of torque in your fingers. That is the "sweet spot.") *(percussion point)*

Swing Arc:
The entire path the clubhead follows in its complete motion away from and toward the target. It has the dimensions of both length and width.

Swing Center:
A point around which the roughly circular motion of the swinging of the arms and upper trunk are made. It is located between the base of the neck and top of the spine. (Not necessarily fixed, it remains generally constant in the small swings, with some movement allowed as the swing gets longer. Nevertheless, if the movement of the swing center is too great, the overall timing of the swing becomes more difficult.) (*hub*) (f 4-5)

f 4-5 Not to be confused with the center of the clubhead's arc which is located nearer the left armpit.

Swinger:
A player using a style of striking the ball which primarily employs body rotation, light grip pressure and good rhythm to maximize centrifugal force.

Swing Plane:
An imaginary flat, thin surface which is used to describe the path and angle on which the club is swung. Plane has inclination or tilt, i.e., flat, medium, upright, as well as direction — inside, down the line, or outside.

Takeaway:
The early portion of the backswing.

Target Line:
An imaginary straight line drawn from behind and through the ball toward the intended target. (*Intended line of flight or Aim-line.*)

Tempo:
The rate of the swing — fast, slow, etc. (Most swings take around two seconds from takeaway to finish.)

Texas Wedge:
A putter used from an unusually long distance off the green. The term developed on Texas courses where the ground was so hard one couldn't effectively pitch the ball with a wedge.

Three-Quarter Shot:
A shot played with less than the normal length backswing or effort, designed to achieve around 75% of the regular distance for that club.

Timing:
The sequencing of the body parts and club to achieve the most effective motion. (*proper sequential motion, connection*) (Illus 4-20)

Toed Shot:
Any shot which is struck away from the club's center nearer the toe end of the club.

Topped Shot:
A rolling or low-bounding shot caused by striking the ball above its equator or horizontal axis.

Touch:
A delicate sense of feel, usually alluded to when referring to skill around the greens.

Illus 4-20
Timing is one of the Principles *Betsy King, LPGA superstar, exhibits weekly on the Tour. Photo by Don Furore*

Trajectory:
The path a ball takes in the air. In golf it refers primarily to the height of a shot.

Transition:
The change of direction in the swing from back to forward, from away to toward.

Uncock:
To allow or cause the wrists to straighten in the forward swing.

Upright:
A swing plane which is steeper than normal; an address position which is more erect than normal; or the lie of the club in which the shaft is inserted more vertically than in a club with a normal lie.

Vector:
A quantity or measure related to force that has both magnitude and direction. An important factor in determining the distance and direction a ball travels.

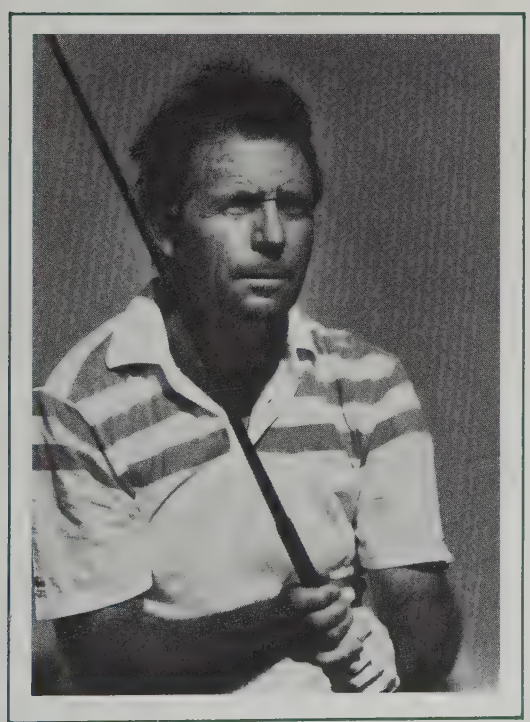
Visualization:
Forming a mental picture of the correct swing or desired result prior to swinging the club. (*mental imagery, visual imagery*) (Illus 4-21)

Waggle:
A movement or series of movements made prior to the swing with the purpose of staying relaxed, establishing comfort or setting pace. In its most common form it consists of moving the clubhead over or in back of the ball in small wrist-cocking motions of the hands with accompanying movements of the arms or other parts of the body.

Weak Grip:
The currently used expression to describe an exaggerated counterclockwise (toward the left shoulder) rotational positioning of the hands when placed on the club. (Change to *Open-Face Grip.* This is more descriptive, does not imply an over-relaxed hold, and, in its application, is parallel to other golf terms such as "open stance.")

Whiff:
A complete miss when attempting to strike the ball. (*air shot*)

Yips:
A psychological condition affecting the nerves which causes the player to lose control of his hands and the club. Usually associated with putting, it can also intrude upon other parts of the short game such as chipping, pitching, or bunker play. (*twitches*)

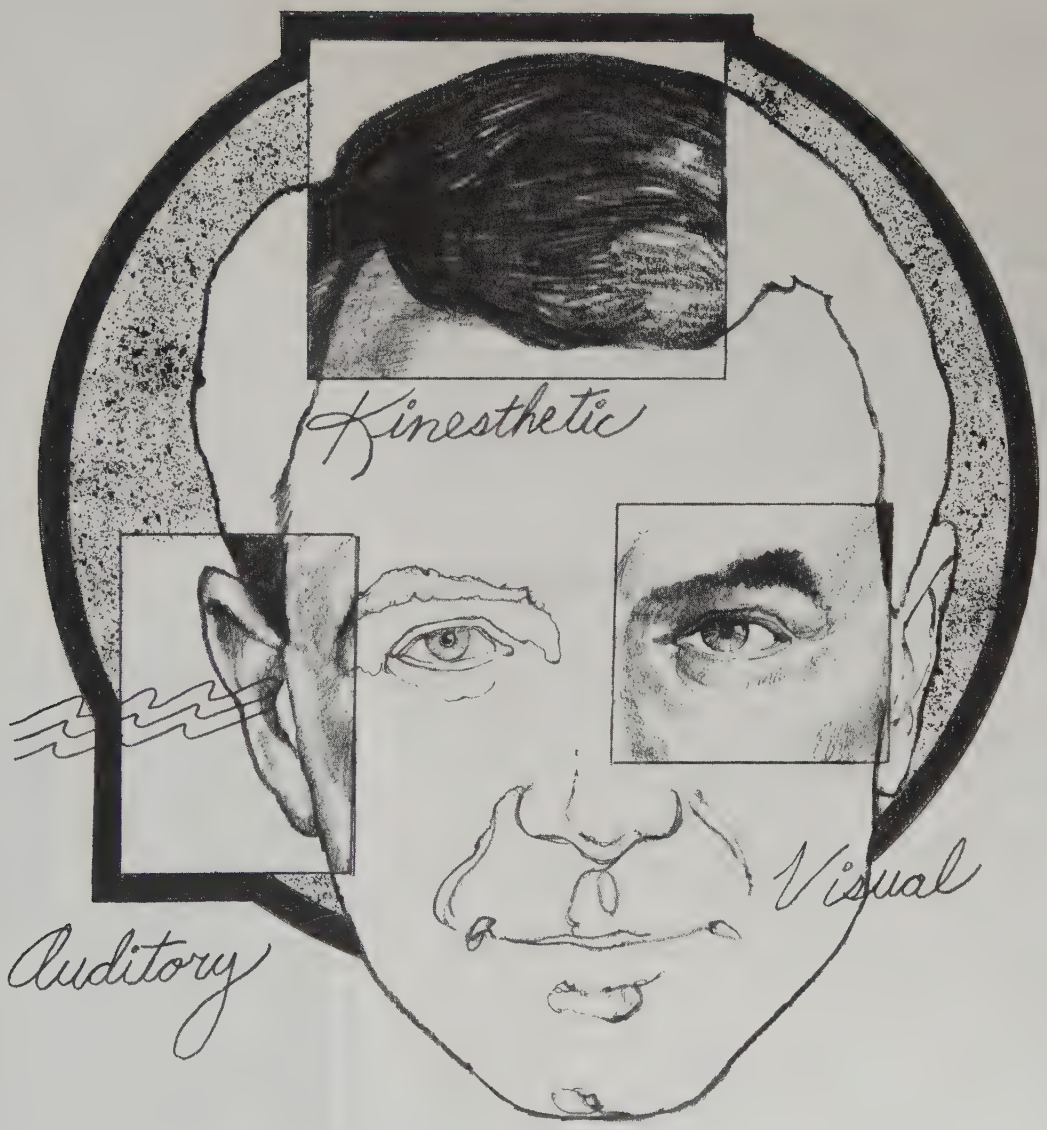


Illus 4-21
Imaginative positive visualization is one of the strengths of golf's most traveled champion Gary Player.

CHAPTER 5

How People Learn —

"The Psychology of Teaching"



CHAPTER 5

How People Learn — "The Psychology of Teaching"

The novice golfer reaches one of the game's early mileposts when he makes the observation, "There certainly is a lot of psychology associated with learning and playing this game." Making that discovery and successfully coping with it are two different matters. Golf is psychology personified. In any sport the more time you have to think about your performance the more susceptible you are to becoming "psyched." Playing golf provides that opportunity from 60 to 160 times a round. Less obvious is the fact that psychological factors play an equal if not more important role in *teaching golf.* In fact, you really can't separate the physical and psychological when considering one's performance. Together they are present in the execution of every shot. Nonetheless, we can identify and discuss facets of learning which relate more to the mind than the body.

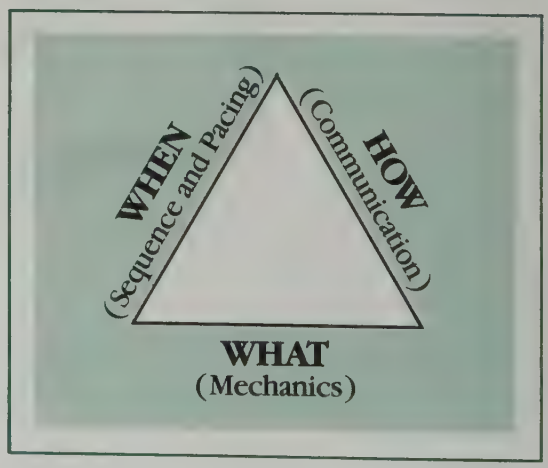
The psychology of motor skills learning is what this chapter is about. That may sound like an academic undertaking, but in golf it's a real and very practical common-sense kind of needed knowledge. Chapter 19 will deal with the psychological challenges the golfer faces in playing the game. This chapter will deal more with psychology related to shot technique acquisition.

How *do we* learn a motor skill, any kind of skill like typing, ping-pong, or playing the piano? The honest answer is we're not absolutely certain, at least not as far as the details of what happens precisely from the brain to the nerves and muscles to produce a given movement. Motor learning *theories* do exist which attempt to explain the general pattern of the learning process, be it basketball free-throw shooting or swinging a golf club. Familiarity with such accepted learning theory models could help any teacher to improve his teaching by causing him to either alter his procedure or reinforce that which he already does intuitively.

The Teaching Triangle

In PGA Business School the students are made aware of the symbol and meaning of the Equilateral Teaching Triangle shown here. (Illus 5-1)

The triangle suggests that there needs to be a balance among the three variables which influence one's success in teaching. The *WHAT* side of the triangle represents technique, the mechanical elements like grip, stance, and swing. It is *WHAT* the teacher selects to teach. The *HOW* side refers to the process or "*HOW* the teacher communicates to his student the content relating to mechanics." The ability to communicate, or the *HOW,* can be at least as important, if not more important, than the *WHAT,* or choice of mechanics. The final side of this equilateral triangle is the *WHEN* which may be referred to as "sequence and pacing." It relates to *WHEN* the teacher introduces certain elements of the game, such as putting, chipping,



Illus 5-1
The complete teacher has knowledge not only of technique, but also of communication and pacing.

the woods, etc; in what "sequence?" It also means *WHEN* is the pupil to be given that one more tip "to straighten him out" or *WHEN* he is allowed to hit balls as a beginner, or *WHEN* the two-lever swing is introduced in the pitch, or *WHEN* are the finer skills of maneuvering the ball demonstrated? How soon? That's "pacing," the *WHEN.* (f 5-1)

f 5-1 The correct pace in teaching is the fastest rate at which the student can assimilate the material. It will be most effective in small blocks, stacked one on the other.

Future Possibilities

Projecting for a moment to the future, we will see science playing a greater role in the *WHAT* and also influencing the *HOW* and *WHEN.* There will be further scientific research and, hopefully, a resultant common agreement on the basic principles influencing the mechanics of the swing. A gradual acceptance in the order of skill introduction will evolve, i.e., putting, chipping, short swing, full swing, etc., though variation and preference of style will always be present. Electronic devices will be even more sophisticated than those we currently have. These new devices will detect additional information which the teacher is unable to see with his naked eye. Deviations from desired mechanics will be quantified to help provide the professional with data for use in correcting swing faults. (Illus 5-2) How effective and practical high-tech analysis will be remains to be seen, but certainly it will give the teacher a powerful analytic tool.

Keep in mind, however, that the human brain is a mighty computer as well. There are technical swing flaws that the experienced teacher will sense that a computer is incapable of detecting.

Science will always be hard-pressed to find machines which can replace a human being as the teacher, for the human brain is not only a computer but provides sensitivity and intuition which electronic machinery cannot provide. In addition, certain aspects of the *HOW* and *WHEN* of teaching, particularly the *WHEN*, require skills which a computer does not possess. "Pacing" of a pupil takes a teacher's understanding of and insight into the person's needs and an intuitive sense about the progress of that individual's performance. The mere presence of the communicator (the professional) can also add a certain motivational quality to the learning experience that is difficult to reproduce with a machine. The *HOW* and *WHEN* of good teaching is an art. Improving that art is the topic of this chapter.

Illus 5-2
High-tech swing analysis equipment provides information that the teacher can use to confirm his observations.
Courtesy of Sportech

How We Learn

How do we learn? Learning is a process that has stages, and the process of learning starts by perception...perceiving through our senses...using the ears, eyes, and body's internal sensory receptors. The stimuli that the teacher gives to the student are called CUES — they are classified as either verbal, visual, or kinesthetic, to correspond with our senses of hearing, sight, and feel. (Illus 5-3, 5-4, 5-5) What types of cues are used most frequently in teaching? Is the majority of teaching time spent talking, showing, or having the student experience by feel? Typically the answer is, "I guess talking constitutes most of my cues." The fact is that most golf instruction is presented verbally, particularly if one considers the written word as another form of verbalizing. (f 5-2) However, verbal instruction is considered the weakest of these three modes of communicating information on motor skills, particularly to an unskilled performer.

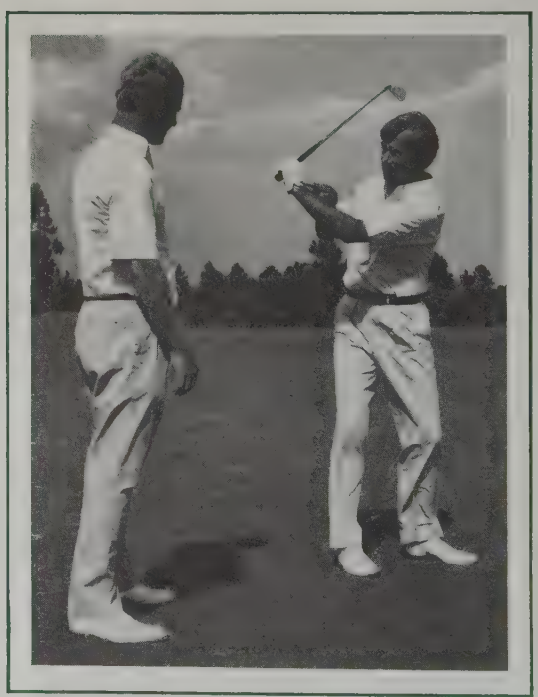
Illus 5-3
The weakest way to teach a motor skill is by talking.

Comparing The Three Forms of Learning

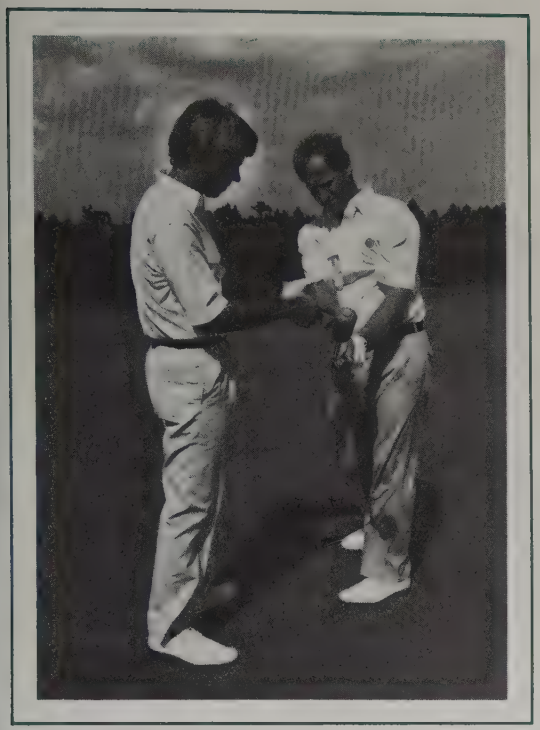
Think of learning how to ride a bike. Someone telling you how would not be very useful. Seeing someone else ride would help. But actually doing it and developing the feeling through one's kinesthetic senses (f 5-3) is the answer. So, while words are an easy way for the teacher to present information, they are not as effective, particularly for the beginner or less experienced player, as *visual learning* from still pictures, video movies, mirrors and demonstration or *kinesthetic learning* from drills, manipulation and learning aids. The advanced player can, on occasion, communicate with his teacher over the telephone or just sit and talk together and be helped, but this would hardly be effective with the novice.

Verbal

One very good reason why talking is a poor way to try to teach golf is the game *does not have a precise language.* This has been identified and dealt with in the previous chapter. Its terms range from inconsistent to inaccurate, and from ambiguous to confusing. One aim of this text is to help minimize this problem. When professional people can't agree on some of golf's common terms (and they can't), then what kind of pictures must such terms communicate to the learning golfer? Verbalizing the golf swing as the primary means of instruction to the pupil has many shortcomings.



Illus 5-4
Students learn visually, with demonstration being the form most commonly used visual form.



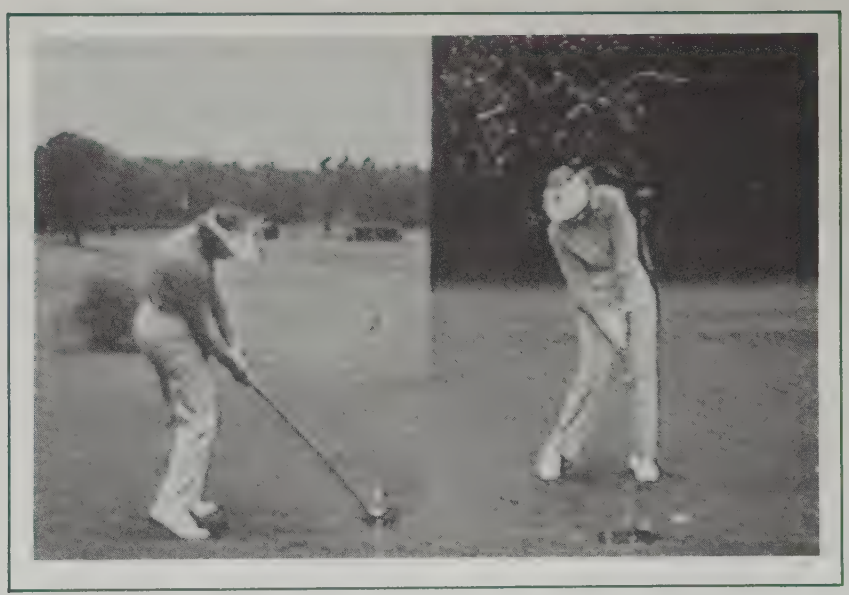
Illus 5-5
In the final analysis it is the feeling of a correct stroke that should be taught. Here the professional is using a learning aid (Protator) to help the student with the feeling of release.

Visual

If a picture is worth "a thousand words" then visual cues must be more effective than verbal cues, and they are. Be it videotape, movies, still pictures, a mirror, demonstration or visual imagery, the pupil will definitely profit if visual aids accompany verbalized instruction. The visual aid may be as sophisticated as the latest multidimensional computerized graphic reproduction of the student's swing overlayed or placed side-by-side on the screen and compared to a current PGA Champion. Or, it may be as simple as a cut out from a recent golf magazine picturing a champion in a certain swing position compared to what the student sees in the mirror in his own production of a similar swing. (Illus 5-6) In either instance visual learning is a powerful tool.

Kinesthetic

Kinesthetic cues are considered a strong means of communicating information to assist the learning of a motor skill because they help transmit "feel." They can take the form of drills, manipulation or teaching devices, but their primary purpose is to create within that pupil the illusive quality of feel, the one which all golfers must have to play well, no matter how mechanically proficient they are. Add kinesthetics to the visual and verbal and it constitutes a powerful potential learning combination. Through all three senses the golf teacher can best transmit information to the pupil. The challenge is to select the one the student responds to best.



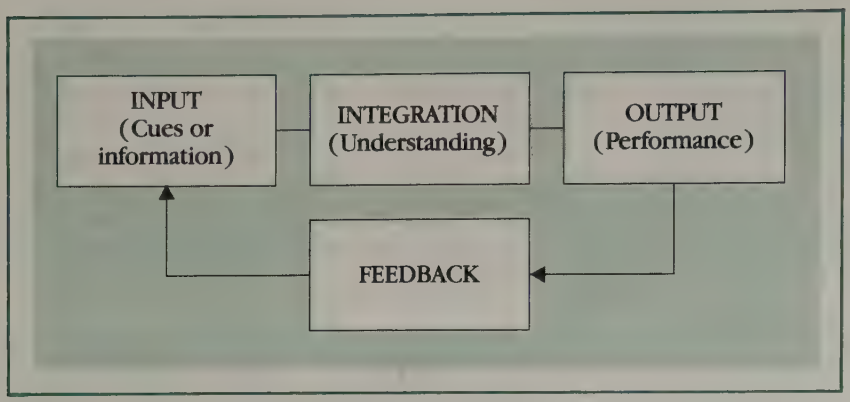
Illus 5-6
The student gets valuable feedback from seeing his swing. (Photo taken from video screen — Peggy Kirk Bell)
Photo by Dr. Jim Suttie

f 5-2 Reading and hearing golf instruction may be considered as a cognitive or intellectual form of learning.

f 5-3 Kinesthetic sense is a feeling mediated by the end organs located in muscles, tendons and joints.

A Learning Model

In the learning theory model shown here the professional's cues or information given to the student is defined as INPUT. (Illus 5-7) It's the primary portion of the learning model that the teacher can influence.



Illus 5-7
A schematic model of the learning process.

INTEGRATION is the mental and physical processing of the cues (like data in a computer) that the student must undertake. If the teacher's communication is simple and clear the student will have a better chance to understand or gain insight. The student's ability to integrate the information will determine the quality of his *OUTPUT* or performance. When the performance (the swing or the shot) is completed, there is a result ("good" or "bad") which gives the pupil *FEEDBACK* on the degree of success. This process is repeated in some form or other on every trial the pupil makes.

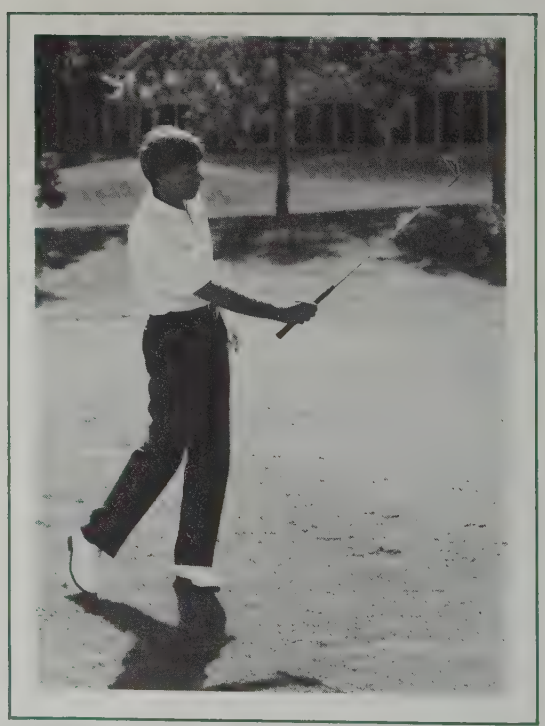
The teacher's most critical role in the model is controlling the cues. The validity of the information he gives and the manner in which he communicates it (does it match the student's best learning style?) will shape the final result. In other words, the quality of these cues largely determines the effectiveness of a teacher.

Cue Giving — Confusion and Overload

Let's take two examples of giving weak cues that were not effective with the student.

Pupil "A" has been slicing due to the clubface remaining open on contact with the ball. The professional, after several unsuccessful attempts at getting the player to reduce his arm tension which was restricting a free release, tries another approach. "Pronate your wrists," is his verbal cue.

This directive, popular in teaching circles a few years back, also fails. No wonder; first of all the student probably doesn't understand what "pronating" means, and if he did, he would realize it's impossible to pronate both the left and right wrists simultaneously and make a golf swing. As we have seen from the terms in Chapter 4, when the right



Illus 5-8
The rotation of the hand and forearm inwardly is called pronation.

Skill Learning

The learning of any skill takes place in three stages, and the approach to most efficient learning needs to be attuned to these stages.

1. *Concept formation: In this stage the learner must fully understand what it is he is trying to do, and at the same time develop a rudimentary feel for the appropriate movement.*
2. *Fixation: In this stage the learner is changing form to achieve a style that is efficient and repeatable.*
3. *Automation: This comes when the appropriate form has been achieved and the learner is now attempting to commit it to motor memory so it can be repeated without conscious control.*

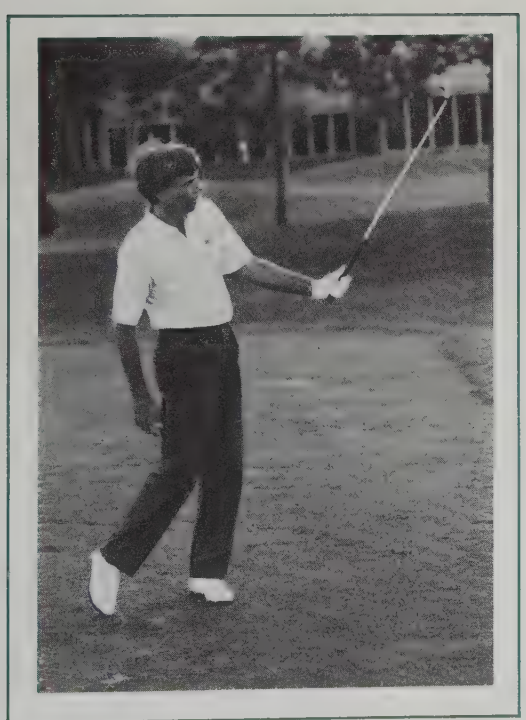
Jack Adler

pronates the left must do the opposite, in other words, supinate. (Illus 5-8, 5-9) The terminology used was unfamiliar to the student and incorrectly used by the teacher. Can you see why such a poor cue could cause the student to be confused?

Experienced teachers might not make that semantic mistake but they may fall victim to the next cue-giving problem. *Student B*, a female, is physically talented though an absolute golf beginner. She has played professional softball and swings strongly and naturally. She progresses rapidly through the early instructional sessions. After four lessons, her swing appears almost that of a low handicap performer. Just a couple of more changes, the professional speculates, and she'll have it. The material from the last lesson is reviewed, another point is added...more improvement...one more adjustment at address...that's better. Now a final change in the position at the top of the backswing and she'll have mechanical perfection. The change is made...but she doesn't have it! The teacher persists but the pupil gets worse with each swing. Finally, she's told to forget that last adjustment, the position at the top. But, her swing is flawed and she can't get back on track. What's happened?

Her mental computer blew its fuses, that's what happened! The circuits were overloaded. She was pushed through fundamentals too quickly and, though it appeared she had them under control, they were not "aged." More than likely she will need to go back and retrace some steps before achieving her former performance. The *WHAT* was correct, the *WHEN* was not. These two examples (A & B) represent typical cue-giving problems, one dealing with the *HOW* (communication) and the other the *WHEN* (pacing).

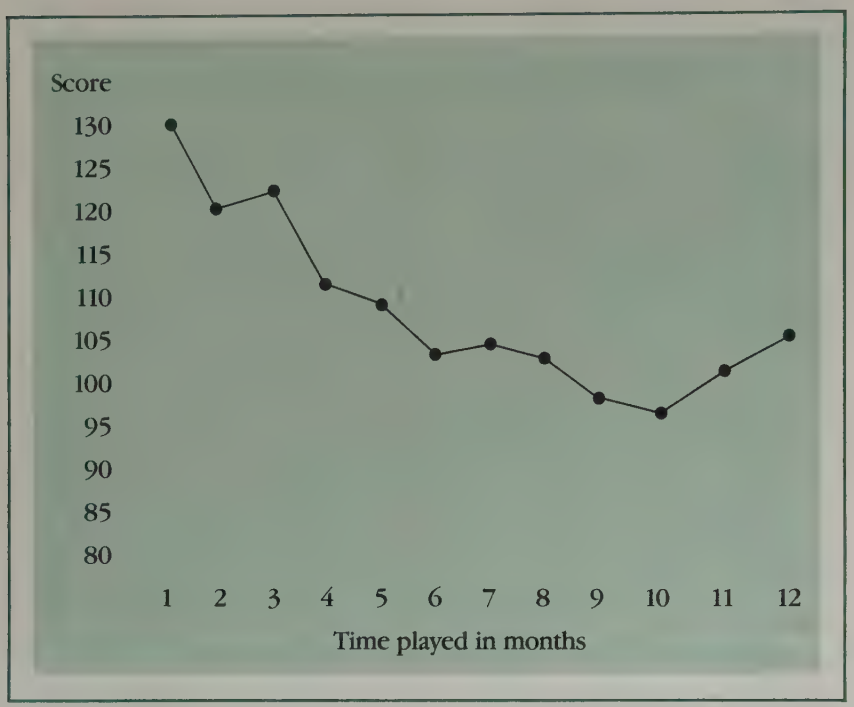
It's important to recognize that teaching golf is much more than knowing *about* the mechanics of the swing. Truly effective teaching employs a properly paced, selective variety of media and verbalization to clearly communicate the wisdom of the golf swing from the mind of one person to the body of another. The complete teacher has not only a *WHAT* to offer but knows *WHEN* and *HOW*. (See Appendices 5-A and 5-B for more information on how skill is acquired and a sample of a nontraditional teaching style.)



Illus 5-9
The rotation of the hand and forearm outwardly is called supination.

The Learning Curve

The acquisition of a skill improves as the pupil acquires accurate information, practices and assimilates. But learning is not a linear activity. Improvement is not constant. There are plateaus and regressions which must be experienced and these become the most critical times for the student and the teacher. A golfer's simulated learning curve is illustrated below.



During extended periods of plateauing (6-9 mos.) and particularly at times of regression (10-12 mos.), the teacher must provide encouragement and explain the concept of the learning curve to the student. The rate of improvement slows, and the "law of diminishing returns" takes over, particularly in the mechanical realm. But improvement can continue as long as the elements of motivation, practice and proper technique are in place.

"There are no mistakes in communication, only outcomes."
Richard Bandler & John Grinder

The primary causes of plateauing or regressing can be found in one or more of the following reasons:

1. Loss of interest or motivation
2. Focus on incorrect cues
3. Fatigue
4. Emotional interference
5. Change in technique
6. Lack of understanding
7. Physical deficiency
8. Low level of ambition
9. Period of assimilation and transition

If the teacher has a student whose progress has come to a halt or has regressed, study this list, determine the cause and apply a remedy.

Feedback

Feedback is the receiving of information from the teacher or from the result of the effort and is essential to learning. If students never received feedback there would be no way for them to judge whether the performance was correct or not. There are three functions of feedback:

1. To correct error
2. To act as reinforcement
3. To nurture motivation

"How we teach is as important as what we teach."

Chuck Hogan

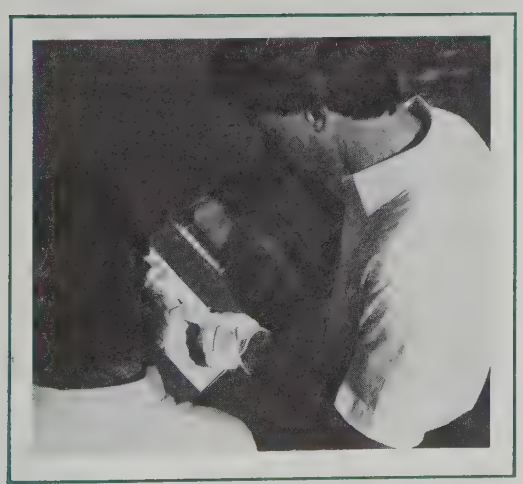
It's important that feedback be specific. Statements such as "quit making bad swings," or "you made a mistake," or "try harder" are valueless, even destructive. *The teacher must present solutions, not criticism or personal judgements!*

Both teacher and student need feedback. Some of that feedback can come from the result of the shot or swing, but there also needs to be some verbal response from the student. He should be asked questions like, "How do you picture making the shot?" "What does your grip feel like in that position?" "When does it feel like the weight is getting to the right side?" "Where do you think your hands are in the address position?"

This form of searching is similar to the questions a doctor asks a patient while probing the body. "Does this feel uncomfortable?' How does it feel when I press here?" The responses the questioner receives will help determine how to proceed.

Critiquing A Lesson

A golf professional relates that during a recent visit with a young businessman friend, the discussion turned to a golf lesson the young man had recently taken with a different professional. The highlights of the lesson were described, after which the young man asked the professional for his comments. The things that the student had particularly remembered were that the teacher told him to grip the club so that his left thumb was slightly to the right of the center of the shaft. Secondly, when the student ran into a backswing problem, the teacher produced a scrapbook and showed a picture of the big shoulder turn of Jack Nicklaus and where the club was positioned. (Illus 5-10) Finally, the pupil was asked to practice a drill in which he was to swing the club and let go with his right hand near the impact area to better feel the influence of centrifugal force.



Illus 5-10
A notebook of pictures taken from golf magazines is an inexpensive application and example of visual learning.

The listening professional told the young man who'd been the student that, quite honestly, it was hard to critique the experience without having been there but that one thing was obvious, the professional teacher from whom he took the lesson was using the three basic means of communicating information about the golf swing. For that reason he gave the teacher a high rating on the HOW. In the examples the pupil gave, it was obvious that the teacher took advantage of all three types of communication cues — verbal, visual and kinesthetic. Together, in one form or another, they represent the entire arsenal of information INPUT to the pupil.

Improving Cues

An ongoing goal for the teacher should be to improve the quality of the cues (or information) that he gives to his students. The fact has been established that of the three ways to communicate (verbally, visually, and kinesthetically), verbal communication by itself is probably the weakest, yet it is by far the most widely used form of teaching. It may be difficult to imagine teaching a lesson without talking but here is an example of how it's been done effectively:

An Example

A person who was a deaf mute came to PGA professional Jim Bailey for instruction. In their first session Bailey communicated to the pupil by writing little notes and messages containing much the same information that he usually used in verbalizing the golf swing to his pupils who could hear. After about an hour and, in Bailey's description, "finding the floor covered with scraps of paper and realizing we were getting nowhere fast," Bailey called a halt to the whole exercise, told his pupil to forget what they had done and to come back in a couple of days. Jim needed time to think.

"The effectiveness of your communication is the response that you ellicit."

Richard Bandler

When his student returned, Bailey had an entirely new approach. This time he demonstrated the movements, showed pictures, and *placed* the pupil in the positions he wanted. Jim would *show* the correct moves first, nod his head "yes" in approval fashion, then *demonstrate* the common errors, shaking his head "no," and return again to the positive with a "yes" indication. Each time the student reached a poor position or made an incorrect move, Bailey would *manipulate* or *demonstrate* the needed change. Each lesson progressed with one or two new moves learned, blended into previous positions and motion. The only written instructions related to terminology, personal communications, or practice drills to be done at home. The pupil did his homework assignments (mostly in front of a mirror), and the progress was excellent. Jim Bailey, though he was very adept at verbalizing the golf swing, had found a new, more effective way to teach...by sight and feel.

Verbal Cues

"Our bodies tend to do what they are told to do, if we know how to tell them...Images are what instruct the body...when the left brain takes over (words), physical movements become clumsy."

Charles Garfield

It might be beneficial for all who teach golf to get a case of laryngitis for a week, or to be sent to Japan or another foreign country to teach non-English speaking pupils. Then the patter, jargon, and cliches would be meaningless and ineffective; a fact which unbeknownst to the teacher may already exist. We've seen that using visual and kinesthetic cues is more effective than verbalizing, but that doesn't mean we eliminate talking. It means we moderate its use. One might criticize the heavy dependence on verbalizing in teaching the golf swing, but it still is *a way* to communicate. Verbal instruction can also increase dramatically in its effect, particularly if words are used to create pictures, (visual imagery) or kinesthetic feelings. When combined with generous doses of visual and kinesthetic cues, verbal communication can blend into a complete and effective presentation of the material. So talk, but do it in a measured way and be conscious of trying to improve verbal cues. This can be accomplished by observing the following:

1. See that your language is accurate and simple. Do not use terms like "pronation," or "strong grip" which may be either unclear or inaccurate. Better language might be "rotation" for "pronation," and "closed-face grip" for "strong grip."
2. Write down the basics that you use with all your pupils. Have them duplicated, then pass them out. Giving the student a chance to read and review the material you have presented will reinforce the student's learning. (In addition, the exercise of writing the instruction will help the teacher to clarify it in his own mind.) (Illus 5-11)
3. At the end of a lesson, ask the pupil to repeat in his own words what he was told during the lesson. Do this again for review purposes at the beginning of the next lesson along with having the pupil describe what he's been practicing. How accurately the pupil can do this will be a good measure of his teacher's ability to communicate. If the student takes notes, read them. When the teacher reads or hears something coming back that doesn't resemble what he has taught, it's time to take stock of his verbal communication.

Illus 5-11
Written materials can help to enhance the conceptual learning plus expand upon the lesson presented.

Visual Cues

If a picture is worth a thousand words, then there are many opportunities in teaching to save one's voice. Use more visual instruction. What kinds of visual cues are commonly used in teaching? The most common is *demonstration.* Since demonstration is widely practiced and reasonably effective, anyone who is actively teaching should also be maintaining his playing ability, or at least his ball-striking ability. The teacher can then be one of the visual models his students use for their swing. A poor demonstration, however, may be worse than none if it causes a loss of faith in the performer. The teacher should be sure he can do what he plans to demonstrate, otherwise the student may say, "He can't do it, how does he expect me to?"

f 5-4 *Nettleton, Brian* You're the Coach *Australian Government. Publishing Service, 1980.*

Demonstration Reminders

Demonstration can be an effective visual tool but how can you be sure your demonstration is effective? Nettleton, in his book *You're the Coach* (f 5-4), gives some advice with the following material. Make sure...

1. *Your demonstration can be easily seen by all.* In demonstrating ball position in relation to the feet, don't have some of your audience sitting in chairs behind the front row where they can't even see your feet. (Illus 5-12) When using a visual aid, make it large enough and be certain the people are close enough.
2. *It matches the level of the group.* There is little value in demonstrating the adjustments in hitting a long iron from a downhill-sidehill lie when the student is just learning to get the ball airborne with a #7 iron from a level lie. (f 5-5)
3. *It should be shown at normal speed.* If demonstrated in slow motion it should be followed by a repeat of the action in normal speed.

Illus 5-12
Observers need to be seated in a way that they can properly view the demonstration.

More specifically

1. Tell the student what to look for before you begin. Be precise, leaving no doubt about what is expected.
2. Repeat the demonstration so the student has seen enough trials to identify the main points and fix the image.
3. Emphasize the positive action. Mistakes may be briefly demonstrated but the students must see the correct action, i.e., what you want them to do.
4. There should be an opportunity to practice the skill immediately after the demonstration. This is why it is vitally important to make presentations brief or to break long presentations into shorter segments. Explain, then demonstrate; have the student or students perform; give correction; student performs again, then the teacher returns and adds the next teaching point; demonstrate and student performs again, etc.
5. Make the task of executing a new complex skill as simple as possible in the early stages of learning.
6. Summarize, review, repeat, but be sure the instruction presented is clear.

f 5-5 If the group has a wide disparity of skill, divide them into sub-groups and present material suited to each level.

Whole-Part-Whole Learning

In teaching golf, the novice player should not immediately be expected to correctly grip the club, use his body to propel the club, make center-face contact with the ball sitting on the ground and send it airborne in the proper direction. That's a very complex task. But the student, through a graduated series of steps employing drills, exercises and simulations, can be expected to acquire that skill. This is called whole-part-whole learning. For example, smaller tasks like those listed below can be learned and progressively combined as a part of the whole:

"We all learn perfectly. It's just that what we learn isn't always perfect."
Chuck Hogan

a. The swing of the arms with proper weight transfer.
b. Aiming the body and properly directing the path of the arm swing.
c. Swinging a club held at the neck (upside down) in a two-lever action and generally timing the release.
d. Placing the hands correctly for the grip.
e. Swinging a golf club with proper rhythm and control.

f. Swinging the club and contacting a target (such as a rubber tee on a range mat, a tee in the ground or an oversized ball like a tennis or Nerf™ ball) without interfering with the swing.

g. Placing a regular ball on the tee and contacting the ball without interfering with the swing.

h. Gradually lowering the height of the ball on the tee to the grass while continuing to make center-face contact and getting the ball airborne.

i. Swinging the club so it has maximum velocity and sends the ball in the desired direction in a consistent fashion.

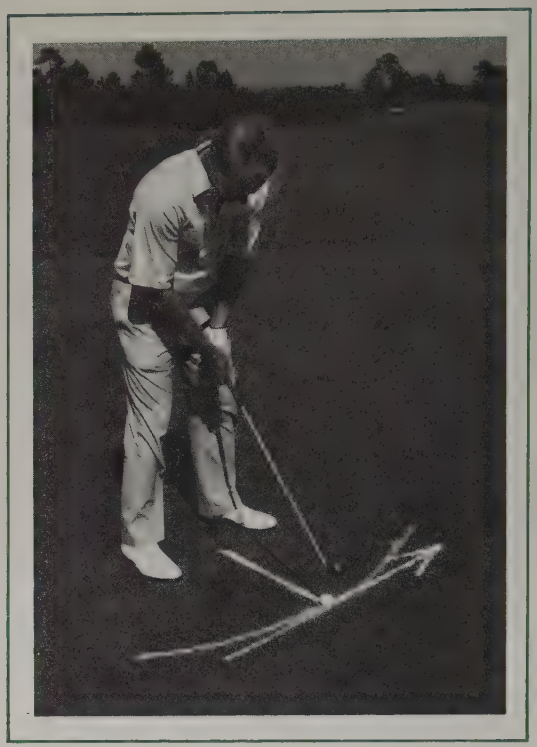
Visual Aids

To Assist Visual Learning Cues

In addition to demonstration there are other visual cues which can be provided by using free or low-cost visual aids. A scrapbook of pictures that are cut out from used golf magazines showing the various positions and moves of great players may further help the pupil to construct a correct visual swing model. Those of Tour stars contained at the end of this book are an example. Tees, balls or clubs placed on the ground or spray-painted lines to help the pupil visualize path, strings, two-by-fours and mirrors also come under the "not so expensive" yet worthwhile aids that can improve the presentation of visual cues. (Illus 5-13)

One of the very best visual aids which can be obtained quite reasonably is a mirror. If the professional has a permanent, fixed teaching station he should definitely invest in a large full-length mirror to be placed where the student can swing and view his positions. Putting taped vertical, horizontal and angled swing plane lines on the mirror provide excellent reference tools to monitor alignment, spine angle, a reverse weight shift, position, path, etc. (Illus 5-14)

There are, of course, more expensive and in some cases more effective aids available to communicate visually. Thirty-five mm reflex cameras equipped with a motor drive will provide 5 pictures per swing and freeze the action. Of course, one has to wait for the film to be processed but it provides a reliable record.



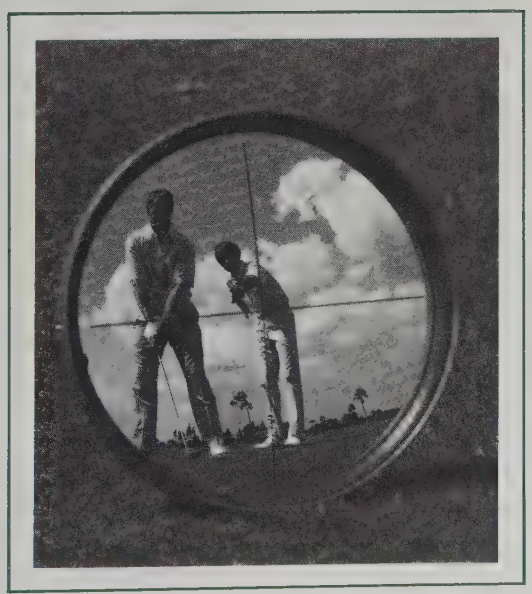
Illus 5-13
Visual aids can take many forms such as painting lines on the ground or on a mat.

Videotape is the most widely used of the sophisticated aids to provide visual feedback. It invariably proves to be an attention-getting and pupil-motivating tool and is extremely effective *when used correctly.* In a complex action like the golf swing it is particularly useful to be able to watch the act repeatedly and focus on individual segments. The major limitation had been video's inability to freeze detail, particularly in the hitting area. But non-blur pictures using freeze action in the hitting area are now available in moderately priced video equipment. Chapter 13 will present the use of video in more detail. Movies taken at high speed are marvelous for analyzing the golf swing but are not cost- or time-effective. High-speed movie cameras are expensive, plus you have the inconvenience of waiting for the film processing and then screening.

Simple Polaroid pictures are instant, inexpensive and can be useful. The graph-check eight-frame Polaroid film sequence camera has been a popular teaching tool. It can capture high-speed action and freeze it with immediate availability for analysis as a permanent record, but the drawback of missed positions in the swing, limited shelf life of film, and the expense per shot will cause it difficulty in competing with the new freeze-action video cameras. This becomes increasingly evident with the availability of state-of-the-art printout equipment that provides hard copy of what is seen on the video screen.

Prerecorded Videotapes

Having the student watch videotapes of a good player's swing would be helpful for most students, particularly if the student is a predominantly visual learner. Sybervision™ is a sophisticated example of visual learning which shows star performers making a variety of repeated successful shots. The visual presentation is enhanced by using different speeds, auditory sounds, graphic representations and changing perspectives to imprint the student's brain with what he sees. It is the modern day scientific equivalent of caddies watching good players and copying what they saw.



Illus 5-14
A portable mirror can be used if a full mirror is not available.

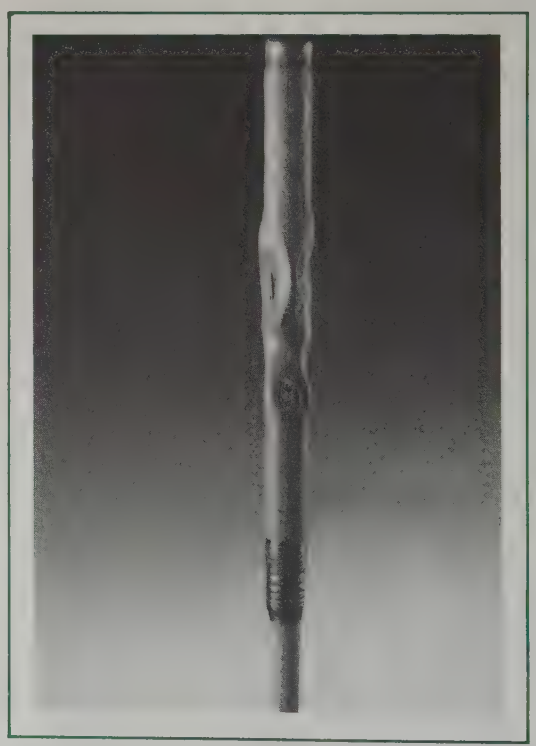
Improving Kinesthetic Cues

Are there ways to learn the feeling of a golf swing without actually making the swing and striking a ball? The inventors and manufacturers of teaching aids must believe in this, judging by the number of teaching devices advertised in the golf literature. Long before the 1940s when Ernest Jones tied a pocketknife onto a handkerchief and swung it to demonstrate centrifugal force and timing there were commercial training devices to help teach "feel." We are just starting to see swing "teaching machines" which literally program the golf swing motion into the pupil by mechanically manipulating him and/or the club through what the inventor considers the proper positions. These machines won't teach a person to play but they *may* teach him to make a certain swing. In the meantime, anything that a teacher can add to his instruction program which helps teach "feel" as well as to program the muscles to perform correct repetitive action would seem useful. Our great teachers are doing it. Bob Toski uses word pictures to create a kinesthetic feel. Flick, Runyan, Kostis, Farley, Ballard, Pennick, Cook, Doyle, Dante, Strausbaugh, Jacobs, Shankland, Leadbetter, McLean, Harmon, Bell, Hebron, Cayce, Mowlds, Harris, Haney, Merrins, Adams, Schlee, Suttie, De la Torre and others not mentioned use drills and positions. The greatest proponent of kinesthetic programming by far is Paul Bertholy. His system recognizes the weakness of attempting to establish movement patterns by verbal suggestion alone. He relies on successive repetitions of selected positions later blended into motion to build correct motor pathways, a form of precise neuromuscular conditioning.

"Create in your students the desire to want to *do something, not that they* have to."
Anon

The Value of Teaching Aids

In the minds of some, teaching devices fall into the category of gimmickry, running from questionable to worthless. True, there are bad ones which tend to drag the good ones down, and though some teachers continue to ignore the available teaching aids that might help "train" their pupil's golf swings, this attitude seems to be changing. It is easy to understand that a teacher generally does not seek change if he's satisfied with what he's doing, but the use of valid learning aids can make it easier for both the teacher and the pupil.



Illus 5-15
Chester Horton used formed grips as early as 1910 to teach the correct positioning.

Creating Your Own Devices

"Past happenings affect current behavior — find successful past happenings."

Anon

One of the game's early noteworthy professional teachers was the late Chester Horton. His name would be unfamiliar to most, although he was a famous teacher in his day. Horton, as early as 1893, was a caddy for Charles Blair McDonald, designer of the Chicago Golf Club, America's first 18-hole layout. Chick Evans (the famous amateur who founded the Evan's Caddy Scholarship Fund) later caddied for Chester who became a head professional in the early 1900s. Horton was known as "Golf's Man of Science," and his golf column was once syndicated in 126 newspapers throughout the country. Chester Horton created more homemade teaching devices to impart feel than anyone up to his time. He used ordinary items like a child's set of stack rings placed on a baton. The rings would slide down when there was a pause at the top of the backswing and then would race to the end of the stick on the completion of the forward swing. Horton constructed a reverse-loft block of wood on a golf shaft that helped chronic toppers learn to strike with descent through the ball. He also used a wood-shafted driver with a grip that he'd formed to match the popular Vardon grip of 1910. (Illus 5-15, 5-16) Whenever Horton had a recurring teaching problem he would invent a gadget to help his pupils solve their problem. *Good teaching doesn't absolutely require such inventiveness, nonetheless it would be refreshing if more teachers could find creative ways to employ teaching aids, particularly those conveying the illusive quality of feel.*

Illus 5-16
A modern example of Horton's idea for a pre-formed grip.

Improving Cues

Teaching cues can be improved by: 1) preciseness of golf terminology and more use of image-producing words and phrases, 2) greater use of visual aids, 3) employing drills and/or devices that teach "feel." One thing is certain, by using all these in combination the teacher of golf improves his possibilities for communicating ideas to the pupil.

Variation in teaching theory and method should not be considered a negative. In fact, just the opposite is probably true. There is variety in the students who come to the lesson tee. Should there not be variety in how a particular student should best be taught? The fundamentals may be standardized but the approach to teaching should be varied according to the student's needs. Teaching styles vary among professionals, and learning styles vary among students. The engineer might be taught more effectively using mechanical examples than a musician or salesman. For example, one PGA professional, Chuck Cook, was explaining two approaches he has used with TOUR players to get more extension through the impact area. With Tom Kite, the analytical type, he described the exact position of the hands, their relationship to the body and the angle of club inclination. To Ben Crenshaw, the more sensory type, he simply said, "Just picture driving the ball underneath a bench placed out in front of you." Both methods were effective but they needed to match the student.

Is the pupil primarily a visual, cognitive (verbal-auditory) or kinesthetic learner? Knowing their occupation may be of help to the teacher. People in the sciences tend to be more cognitive. They need detail to fully understand the "why" of what they are being asked to do during a lesson. Reading about golf and studying teaching and playing methods is enjoyable for them. A book like Homer Kelley's *The Golfing Machine* might be of more use to the cognitive learner than Toski's and Love's, *How To Feel A Real Swing,* which would be ideal for the "kinesthetic learner." Video instruction like Sybervision would seem totally appropriate for the visual learner, while at the same time it can easily be understood why the other learning types might find it of less value. (Illus 5-17)

Illus 5-17
A visual learner would appreciate this concept of a bunker shot.

Matching the learner and the method therefore becomes an important consideration. The ideal situation would be to identify by a test the way a student is best able to learn and to adapt a presentation to fit his ability or need. Good teachers already do this instinctively to some degree. But in the absence of an objective test, using only instinct and general information to classify the learner,

Types of Learners

1. *The innovative learner is imaginative and relates new information to his own experience.*
2. *A common sense learner wants realistic examples relevant to real life.*
3. *The dynamic learner wants to learn by actual involvement and specific experiences.*
4. *An analytical learner wants to see the principles and concepts behind the subject.*

Accelerated Learning
by Colin Rose

the degree of accuracy to assess that ability is probably low. There are paper and pencil tests currently available which may help a player understand himself as a learner and player. Norms are not established, however, leaving validity and predictability at less than statistically significant levels. Nonetheless, they may be useful to the teacher.

Adapting the presentation to the student's ability or learning style is important but there are occasions when a player needs to break out of his comfortable style in order to improve. The teacher may need to be the catalyst to make that happen. An example might be a player who is almost totally kinesthetic-oriented, swinging and playing by feel alone, but experiences bad spells of inconsistency. His normal procedure is tee it, hit it and chase it. While his playing by feel may be natural he may need just a bit more structure, such as a simple pre-shot routine, then do what's natural. It's not totally his style, yet the teacher is not forcing him out of his style, only adapting it.

Individual Difference

Not only do we learn with different styles but at different rates under different conditions and at different rates at different ages. What takes one pupil two lessons to achieve may take six lessons for another. What a student could accomplish in a given period of time when he was twenty years old may take him three times as long at age sixty.

More Factors — Facility and Environment

There is more to the psychology of teaching than just that involved in communication, sequence and learning styles. Here are a few of the other factors which can make a psychological difference in the learning process:

Environment — It's strongly recommended that on your practice range you have a special designated area for private lesson use only — one that can be separated by shrubbery, fence or whatever to truly make it private. Many golfers are self-conscious when taking a lesson. Having someone nearby watching or listening only makes it worse. Make the area as pleasant and comfortable as possible. A couple of chairs around a table, some shade, perhaps refreshments (at least water) and possibly music to complete the setting. The right music or sounds can be a marvelous auditory aid to relaxation. In Chapter 11 under facilities, these suggestions are covered in more detail.

The term *environment* has a larger meaning than just a facility for practice and instruction. It also means the atmosphere related to teaching and learning at a course or club. What is the attitude of players and staff toward learning? Is instruction and practice to improve accepted, expected, or rejected by the golfers at the facility? Making it part and parcel of a facility's program is the aim of the conscientious teacher. Taking golf lessons is part of learning. This attitude should be fostered. How?

Convenience — Make the logistics of signing up for lessons simple. Hubby Habjan at Onwentsia in Chicago has his lesson book and those of his staff on a table in the golf shop. He blocks off those hours or days when he knows he'll be otherwise occupied. Then members may simply fill in their names where there are open times or ask one of the staff to do so. The point is, make it easy and convenient so that there are no unnecessary psychological barriers for the student to overcome.

Promotion — Publicize success stories. Take pictures of students who have lowered their handicap, or have overcome a problem in their game, or who have met a personal goal, such as: walking 18-holes, playing three straight rounds without once getting angry, meeting 20 new people on the golf course. Take pictures before and after, post achievements and put them on the bulletin board or in the monthly newsletter.

Post a sign in the shop and locker rooms which makes lesson taking appealing such as, "The greatest joy in golf comes when you are improving. Take lessons and make golf more enjoyable." Erase any possible stigma associated with seeking instructions. Make available business cards or literature that promotes lessons and explains the details of how to get that objective accomplished.

Some Additional Psychological Considerations

There are factors which can influence the learning environment which the teacher may overlook. While more details on giving lessons will be covered in Chapter 12, here are some examples which deal particularly with psychological factors:

Greeting the Student — First impressions can be important and there is only one chance to make a first impression. But regardless whether it's the first meeting or not, *make the student feel welcome.* The teacher should let him know that he's pleased to have the student there. A smile, a handshake, help with equipment, using his/her name and saying that you look forward to working with the student sets a good tone. Next, make the student comfortable and relaxed. Understand the principle — *a student who is relaxed will be a more receptive and better learner than one who is stressed.*

The Lesson Starting Time — One element the teacher must deal with is a time schedule. *Remember to be on time and try to stay on time!* Make it a habit. Sometimes it becomes difficult. For example: A student has a 2:00 p.m. lesson, arrives at 1:50, and waits patiently in the background for thirty minutes, clubs in hand, until 2:20, while the teacher finishes the previous lesson. How will the student feel before the lesson ever starts? If you say "angry," you are correct. Yet, it may have been that the person who was taking the previous lesson had unfortunately been 20 minutes detained, was playing in a tournament that weekend and needed the full half hour. By the time this is explained to the 2:00 lesson student he may already be too angry to recover before his lesson is over. One way to overcome some or all of this potential hostility is to meet pupils on the putting green, or at the short game practice area, or somewhere on the range where they have been provided a bucket of balls. Get them actively practicing. Never leave them sitting and wasting their time. Lateness will be of far less consequence using this procedure. The important point is to start the lesson with the student psychologically receptive, not rejective.

Nonverbal Communication — There are a lot of nonverbal messages we give to people through actions known as body language. Some say that as much as 85% of our communication is nonverbal. Whatever the percentage, our nonspoken messages do have an impact on the student. For example, if a student arrives a few minutes early while the professional is practicing prior to the lesson, should the professional stop his practice or continue hitting? If he chooses to continue, he is sending a nonverbal message that says that he values a few more practice hits as being more important than the lesson about to be given to the student. Another nonverbal mistake the teacher may make is glancing at his watch during the lesson and having the student see him. Innocent as it may seem, the message conveyed to the student is, "He can't wait for this lesson to be over." Folding one's arms across the chest, pointing a finger toward the student, or covering one's mouth with a hand while talking, all convey unspoken messages, a fact to which the teacher should be alert.

The Most Important Factor in Learning

Having the world's best golf presentation, the most accurate information, the perfect facility and all the available learning tools, would be of little value if the student had no desire to learn. On the other hand those people who are intensely motivated will, in the most primitive circumstances, without easy access to any tutorial assistance, find some way to learn. One of the game's all-time straightest hitters, Calvin Peete, became a PGA Tour winner strictly out of the determination to do so. (Illus 5-18) He was motivated by circumstance. Being one of thirteen children and living in a Florida agricultural ghetto community, his future portended little hope other than that of a migrant farm worker, unless he could find "a way out." Peete read in the newspaper that Jack Nicklaus had made $1,000,000 playing golf, so Peete decided that he would try to make a living in the same manner. Using a high school athletic field on which to practice he laid a paperback golf instructional book on the ground, studied the pictures, copied them to the best of his ability and hit balls. Though he had a deformed left arm from a childhood accident, no advantage of a golf facility on which to practice or play, very limited financial resources and no teacher, he succeeded. What does that say about learning? That the most important factor is *desire to succeed.* Theoretically, learning can continue to infinity, stopping only when the person loses his motivation to continue. When that happens, learning stops and deterioration in performance sets in. (f 5-6)

f 5-6 It may be useful for the teacher to discover why the golfer is playing or taking lessons. (See Appendix 5-C for further information.)

Supporting A Student's Motivation

There are two fundamental ways that people are motivated — 1) Threat of punishment, 2) Promise of reward. The teacher needn't rely on punishment, the game has it built-in. When a player hits a shot out-of-bounds, he's punished by an extra stroke, loss of distance, loss of ball and possible loss of money and pride. So threatening to punish someone for playing badly is an exercise in redundancy.

On the other hand, as in the case of PGA TOUR star Calvin Peete, and scores of players before, the promise of financial reward, of fame, or being looked up to by your peers, can cause an individual to seek improvement by practicing until "their hands bleed."

There is every opportunity for the teaching professional to reinforce existing motivation in golfers, such as:

1. **Praise** — Make comments like: "Nice shot," "Good round," "Did you folks hear what my star pupil Mr. Evans shot today?," "Your swing is much better, now keep practicing."
2. **Recognition** — Establish a Player of the Month, Most Improved Golfer of the Year, Club's Best Putter, Driver, Chipper, etc.
3. **Reward** — To become the Club Champion, Fall Handicap Cup winner, win merchandise certificates, be selected for the club competitive team or as a pro-am partner, are all potential motivating conditions.

"Motivation requires meaning (it must offer a benefit)."

Dan Miller

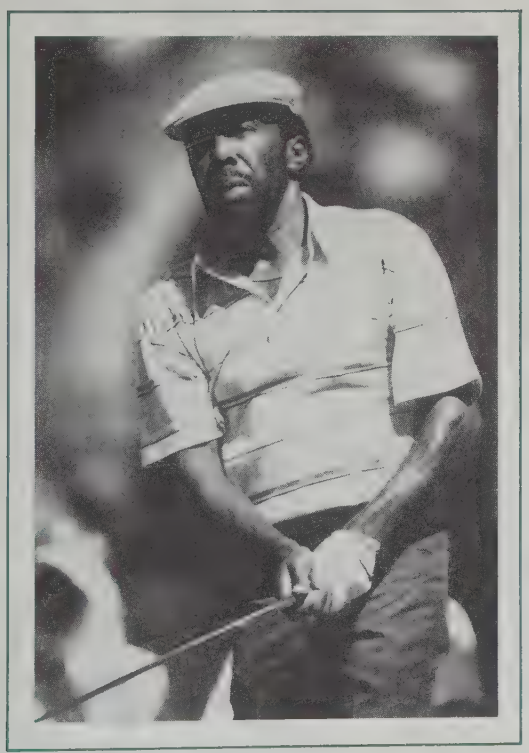
Give the player an opportunity for self-fulfillment. The establishment of the student's goal or goals is one of the key ingredients toward the maintenance of motivation. The *professional's lesson record keeping system* suggested later in this manual has a place for the player to identify his goals and to identify a time frame for them.

The greatest teachers are the ones who are able to get the most from their students' abilities. Sustaining the students' motivation is an important part of that challenge. Providing students with hope through encouragement — "you can do it if you want to and are willing to make the effort" — will be one of the tools.

The Overall Objective

Presenting accurate information in a clear fashion which the student enjoys and is motivated to apply is a healthy recipe for success. It's also important that the student senses sincerity and empathy in the professional. *Remember, the person is always more important than his golf swing.* Let's repeat that..."the person is always more important than his golf swing." The student will quickly be aware of whether the teacher holds this philosophy.

What's the value to the world in helping a golfer lower his handicap or win a tournament? There is none, unless in doing so you have helped that person develop as an individual...more self confidence, perservance, appreciation for the effort it takes to obtain reward, more tolerance of others, etc. The professional can be not only a builder of golf swings but of people. *Supporting a person's efforts, no matter how untalented one thinks that person may be, showing patience, concern and compassion, demonstrates that one values the dignity of the human spirit. If one can do that, he or she is quite a teacher.*

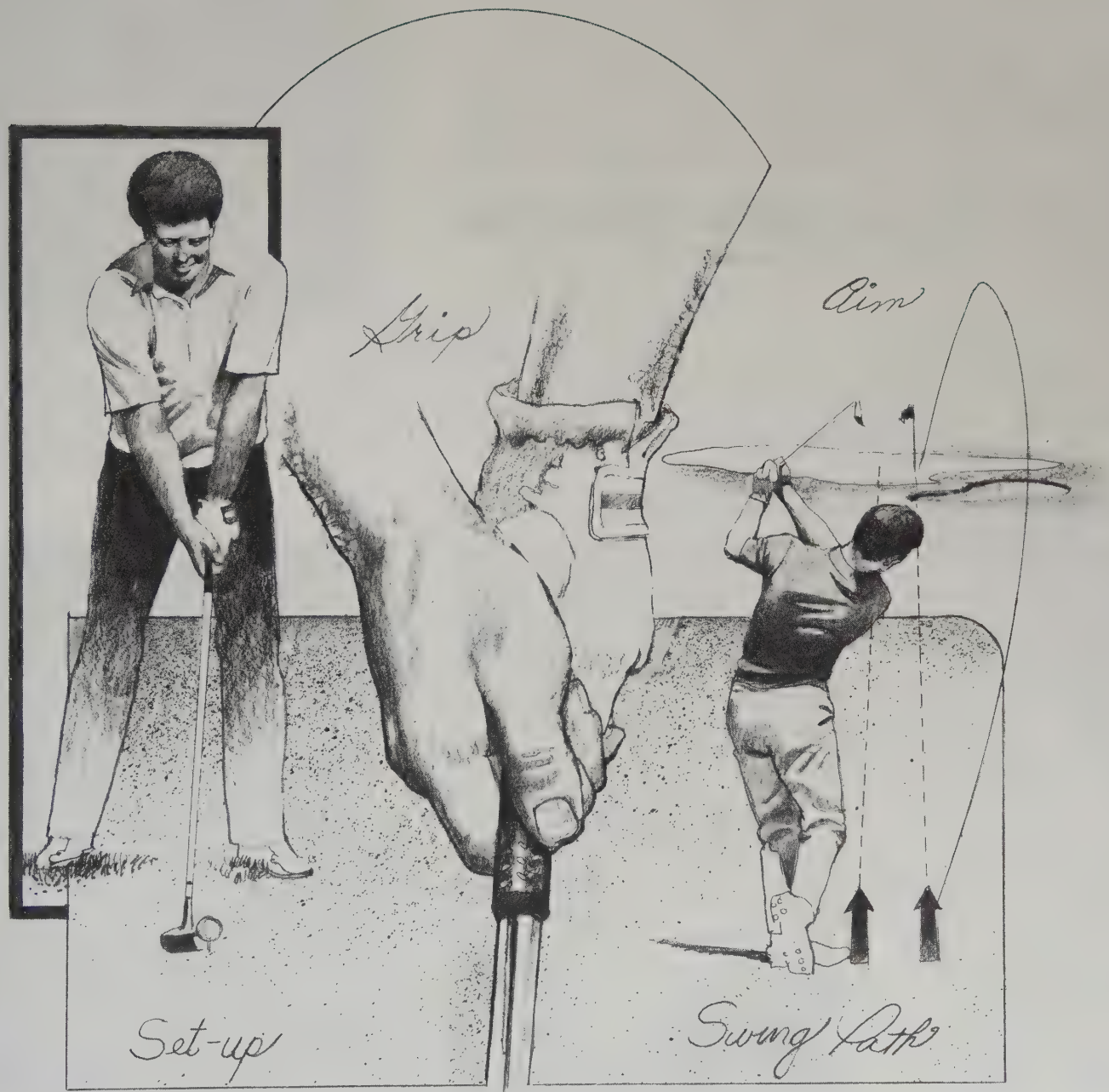


Illus 5-18
One can overcome formidable odds when motivated, as did Calvin Peete.

CHAPTER 6

The Swing

Pre-Shot Fundamentals: Grip – Aim – Set-Up



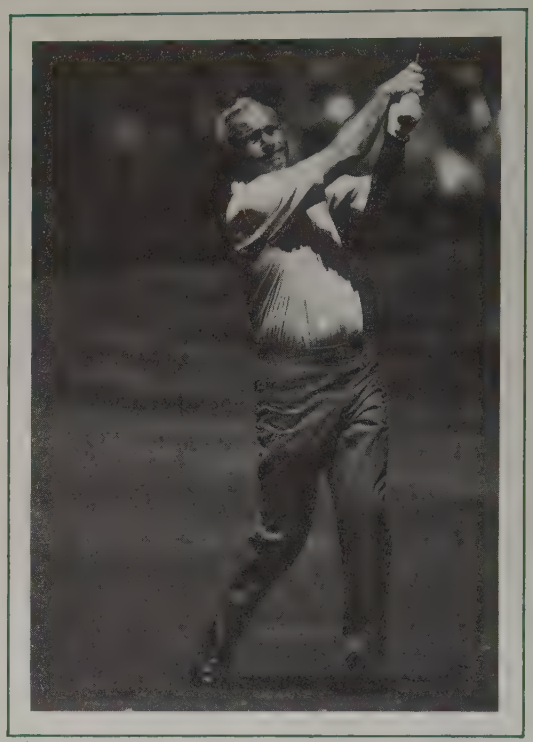
CHAPTER 6

The Swing

Pre-Shot Fundamentals: Grip – Aim – Set-Up

Full shots constitute less than 45% of the scoring in golf for almost all levels of players. Yet whenever golfers gather, the full swing monopolizes the practice time, the effort and the conversation. "The swing," as it is more commonly called (as though there were just one), can be made in a variety of angles, shapes and sizes while still being effective. (Illus 6-1, 6-2, 6-3) Because there is no one solution for finding a swing style that fits all, there is no universal agreement on which style is best. So people keep searching and expounding upon their results, which explains titles of books like *The Search For The Perfect Swing.* The swing mystique continues because there is no simple solution. (Illus 6-4)

Therefore, when we discuss "The Swing" in the ensuing chapters we are referring not to any particular swing style, but rather to many of the preference choices that the player makes in placing his hands on the club, positioning the clubface and his body to the ball and target, and setting the club in motion in an attempt to propel the ball to the target. From those preference choices we hope to demonstrate some patterns and draw conclusions which may help the reader to better help others in their search for an effective technique.

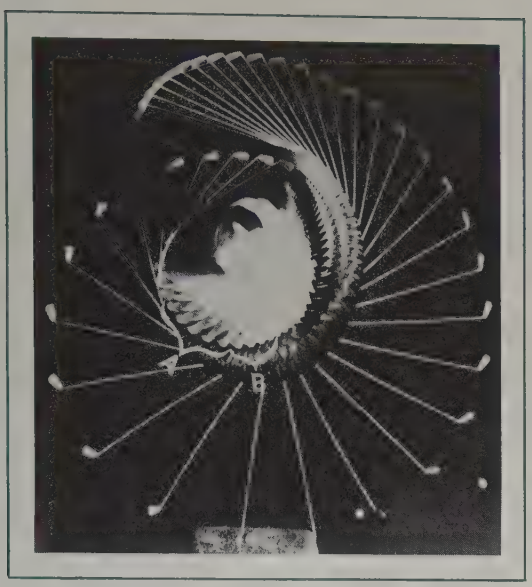


Illus 6-1
Professional golfers exhibiting three different finish positions. Note the variation in elbow separation among the three. Arnold Palmer.
Photo by Jeff McBride

Illus 6-2
Larry Nelson
Photo by Jeff McBride

Illus 6-3
Mike Reid
Photo by Jeff McBride

What is a Swing?



Illus 6-4
There is a mystique surrounding the golf swing which has prompted man to scientifically research it.
Strobe photo by Dr. Harold E. Edgerton

Understanding the word *swing* itself as it applies to golf would be useful in attempting to perform this action. Dictionary definitions of swing use descriptive phrases like "back and forth with a regular motion," "to hang or suspend," "to cause to turn in alternate directions," "cause to move in a curve," "to move freely," all quite applicable to a golf swing. Whether the player attempts to get results with a hitting swing (a more right-sided, leverage-dominated action) or a "swinging hit" (more left-sided with a centrifugal force emphasis) is of no concern to the ball. The important point to grasp is that in order to get the best results, some type of swinging action must take place. The ball only responds to the clubface, path, centeredness, speed and angle of approach, not to how they were produced. The ball doesn't care. The word swing, however, appears in every instructional book ever written, so whatever style the teacher or player prefers, the idea of "making a swing" should be a part of any instructional plan. (Illus 6-5)

Two Phases to the Swing...

The swing has two distinct phases: (1) *pre-swing*, before the major motion begins, and (2) the *actual swing* itself. One of the hardest lessons for the pupil to learn is the importance of the three pre-shot or pre-swing principles: grip, aim and set-up.

The Grip — Its Importance

Illus 6-5
A sample of a swinging motion in which there is rhythm, acceleration and consistency.

How can anything so bland, so inert, so preliminary as *The Grip* in golf be so important to performance? Remember when you, yourself, were first learning golf? Lesson #1: The Grip. It ranked in excitement right along with basic toothbrushing information from your dentist. Take a poll among the millions of golfers who have received instruction and you'll find that the grip wins "Golf's Dullest Principle Award" hands down (no pun intended).

Yet, PGA teachers and tournament players line up in dutiful respect to extol the importance of grip as a Gibraltar-sized, rock-solid PRINCIPLE around which to build a golf swing. Don't take our word for it, read the captions surrounding this chapter.

One of the game's great teacher/player professionals, Tommy Armour, after a career of watching thousands of swings said, "If I could stand the strain (and the pupil, likewise) I would devote at least a couple of weeks to the grip in golf instruction." He may have been exaggerating, but it showed how serious he was in expressing his feelings on the absolute high priority that grip plays in good golf.

If one were endowed with hands like Armour's — strong and supple — he'd enjoy a distinct advantage in his potential to control the club. These attributes are an advantage, but anyone, even with untalented

and unathletic hands, can learn to position them in a workable manner. Despite this fact, if an inspection were called for on the way most of the world's golfers place their hands on a golf club, it would reveal that faulty grips prevail. Ask the top 60 PGA Tour money winners participating at the weekly pro-ams in the U.S. and they'll attest to the scarcity of sound grips among their amateur partners. It explains how an old chestnut like "you never see a good player with a bad grip or a bad player with a good grip," achieves credence. Grip does make a difference! If one is seeking a higher authority on the issue, someone in the golfing immortal class, then let's wrap up this case for the grip's importance with the quote of a man who, when discussing golf, didn't waste words on trivia. He said simply, "Golf begins with a good grip." Ben Hogan has spoken. (Illus 6-6)

"I have to rate a faulty grip as the most common cause of bad golf."
Tommy Bolt

A Good Grip

What is a good grip? Which style should be selected? Being bombarded by tips, hints, secrets from books, newspapers, magazines and TV must raise some basic questions for the student seeking golfing truth about grip. What should the professional encourage the student to do? Interlock or overlap? Grip tightly or lightly? Use a long thumb or a short thumb? Show three knuckles or two knuckles? Lay the grip in the roots of the fingers or diagonally across the hand? Try to keep the hands quiet or active? Apply constant or changing pressure? And how about all of the variations within and choices beyond these examples? There must be countless combinations.

Back to the question: What is a good grip? *It is the one which lets the player hit the most good shots!* More specifically, it maximizes the number of shots that meet the criteria for distance and direction. Since solving the problem of distance and direction is golf's ultimate and absolute challenge, then whatever combination of PREFERENCES a player utilizes to accomplish that objective becomes a "good grip."

Illus 6-6
"Good golf begins with a good grip."
Ben Hogan

Accepted Grip Statements

Actually there are more areas of agreement than disagreement on grip among teachers and players. These areas of consensus are listed below:

"The basic factor in all good golf is the grip. Get it right, and all other progress follows."
Tommy Armour

Areas of General Agreement on The Grip

1. Even though there is a natural position in which the hands should hang, the correct golf grip does not seem to come naturally to the novice player. When the club is first placed in the hands of a beginner, he invariably holds it in a position which will either fail to consistently return the face to square, or will not provide for the greatest clubhead speed. Therefore, the grip must be *learned.*

f 6-1 Extremes in rotation must be avoided as such a position would hinder natural forearm rotation.

2. If a golfer learns the grip incorrectly from the beginning, he can always change his grip, but it will take longer than he realized for it to feel natural. In addition, he can expect that during stressful situations, he will instinctively want to return to the former grip. Whatever discomfort or repetitive practice one must experience in achieving a proper grip, it is worth the effort.

3. The palms of the hands for most players should basically face each other or be turned slightly inward because that is the way most arms hang, but there are exceptions. In some cases, particularly with heavy barrel-chested people, the hands can work effectively if each is rotated slightly outward, i.e., weak left, strong right, provided the rotation is equal, i.e., the same number of degrees. (f 6-1) There is variation of opinion on where the V's should point and how many knuckles one should see. These are only guidelines anyway since it is easier to see more knuckles from a low hand address position than a high one. But even among those who disagree on how "rotated the hands should be," the majority feel that when the palms are not aligned close to, or in, a parallel fashion, "they work against each other." For those teachers who allow one of the hands to be further adjusted, it is usually the left that is turned clockwise to a more closed-face position while the right palm still faces the target.

4. Grip pressure should be light enough to encourage clubhead speed without losing directional control; it should be firm enough to keep the club from turning in the hands on contact, yet not so firm that it destroys feel or speed.

5. The placement of the hands should facilitate their working together as one unit, with no slippage or repositioning.

6. Ultimately, the player should become comfortable with his grip and confident about the position of the clubface during the swing.

7. The grip in the left-hand should be one where the last three fingers of the left hand capture the club handle against the butt portion of the palm, while the grip in the right-hand cradles the club handle more in the fingers.

These are guidelines that one could use to develop a teaching philosophy on grip. But there is so much more. This part of the chapter also deals with the recognition of PREFERENCES — those little variations within the PRINCIPLES that can make a big difference.

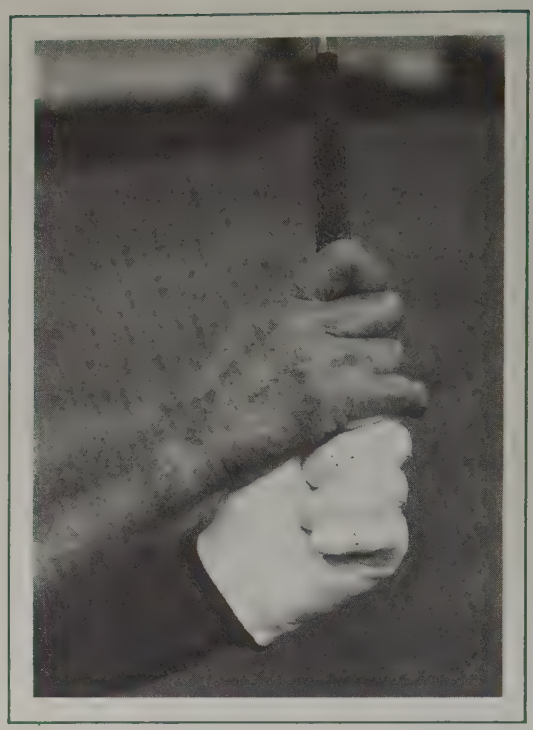
Grip Options — Overlap, Interlock or Ten Fingers

There are four basic points within the PRINCIPLES of grip where one can make choices and demonstrate PREFERENCES. They are: (1) Placement, (2) Positioning, (3) Pressure, and (4) Precision. (Illus 6-7, 6-8, 6-9, 6-10)

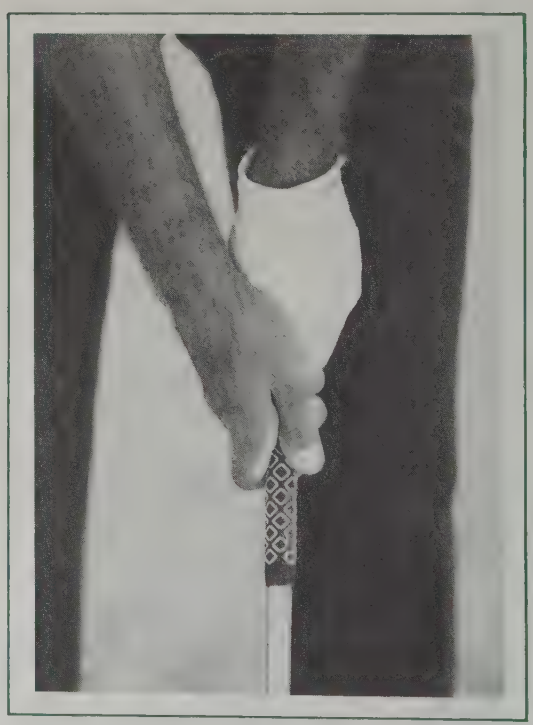
Point 1

"Placement" is the location of the hands on the grip in a vertical axis. How far up or down the shaft is each placed? Should a player choke down on the grip or go up slightly over the butt end? Are the hands spread apart? Are they flush with each other, overlapped, double overlapped, one on top of the other (a putting grip for some) or cross-handed? These are examples of placement choices.

The choice of grip *placement* will be affected by the size of the player's hands, their strength and suppleness. For example, the Vardon overlapping grip has been passed down from one of the game's early great players, Harry Vardon, a man with large fingers and strong hands. Its use by a majority of golfers with these attributes can hardly be questioned.



Illus 6-7
One of the elements of grip is the placement of the hands relative to one another high or low on the shaft. This placement is too high, over the end of the grip.



Illus 6-8
Another element of grip is positioning, or the amount of rotation of the hands, clockwise or counterclockwise. Here is a natural arm hanging position grip with 2½ knuckles of the left hand showing and the "V" of the right hand pointing to the right ear.

Illus 6-9
Pressure is a third element of grip. It is more probable that the correct pressure will occur in the right hand when the grip is carried in the fingers rather than the palm.

But what about the people who don't have athletic hands — the short-fingered, those weak in grip strength, the junior player, a large percentage of ladies and others who find the overlap position less suitable for their hand structure? That's when the other options need to be considered. Two U.S. Open Champions from the 1980s, Andy North and Jack Nicklaus, use the interlocking grip. Both feel the hands more secure and unified with this grip. Unquestionably, it is useful for some players. However, be certain that the locking of the right little finger and left index finger do not get so deep as to force the right-hand grip on the club into the palm rather than the fingers. This would tend to limit wrist joint mobility.

The *ten-finger* grip, sometimes called a "baseball grip," is natural for most new players. (Illus 6-11) They seek to cover more of the grip surface in an effort to use the right hand and exert pressure against the shaft so as to square the face and provide power. Obviously one gets more right-hand leverage in a *ten-finger* grip (no overlap or interlock), since more of the grip surface on the lower portion of the shaft is covered. That's why this grip is often recommended to young golfers and to ladies whose smaller hands occupy less area on the

Illus 6-10
Another element, and maybe the most important one in grip, is precision — doing it the same way each time.

Illus 6-11
When the player lacks strength, or wishes to apply more right-hand leverage, a ten-finger grip should be considered.

grip. These are the players who cannot generate sufficient speed through centrifugal force using their large muscles. But additional emphasis on the right hand by putting more of it on the grip could be a disadvantage if the player still hasn't trained his left side to be an equal partner in the swing. The tendency to put early leverage pressure on the shaft by the right hand when using a ten-finger grip is why it is generally recommended only for those groups previously mentioned. That is why it is important to understand the relative advantages and disadvantages of the three grips: overlapping, interlocking and *ten-finger.*

How to Choose

How do the pupil's hands compare with each other in strength? A student may have a left-hand grip strength of 127 lbs. measured on a hand dynamometer (grip strength gauge) and a right hand reading of 166. One can see which hand will dominate. But the professional seldom has that information. All he knows from observation is that the right hand is much stronger than the left. Should he emphasize left-sidedness in the swing, in which case the pupil would subjugate the right in the grip, set-up and swing to equalize the two; or, should the emphasis be on the stronger right hand, developing a right-sided dominant action?

"It is impossible to play good golf without a proper grip."

Sam Snead

The choice of right side or left side emphasis could hinge on several factors. Right-side emphasis with a ten-finger grip might be the choice, a) if the player has a limited backswing length and is unable to recruit the large muscles of the trunk and back, b) if the player has adequate flexibility to turn but low levels of strength in the trunk and back and needs right-side leverage both for power and to square the face.

A left-side emphasis with an interlocking or overlapping grip might better fit the individual with, a) reasonable strength levels who also possesses the flexibility to make a full turn and recruit the large muscles of the back, and trunk; or, b) one who is very dominant in the right side and causes the left side to continually break down.

"The grip is the crucial junction point from which all the body's strength and rhythm are transmitted to the club."

Arnold Palmer

Strive for Balance

Golf is neither a right-sided nor left-sided game. Golf is a two-sided (bi-lateral) game. What we are striving for is the correct balance of each side, left and right, to produce a swing that is timed properly and produces maximum power. The difficulty of the task is that pupils come to the professional with all different levels of strength, flexibility and dominance patterns. What works for one is not necessarily the best for the next. The challenge is to find their strengths and limitations, maximize the first and minimize the second. When some expert speaks of a right- or left-side emphasis it is only a matter of degree. To find the best balance of the two by encouraging the right or left side, or by focusing on the two sides together, is up to the teacher's judgement. But we do know that the left side is the leader; it *must arrive first.*

f 6-2 A hook does not produce topspin, only less backspin. Only a topped shot or rolling ball produces topspin.

Point 2

"Positioning" in the grip is the amount of rotation of the hands clockwise or counterclockwise, generally referred to as "strong" or "weak." The Positioning is dependent upon the size and strength of the player's hands plus the shape of the shot he/she is trying to hit. The terms "strong" and "weak," when used in a golf grip context, are both imprecise and misleading. Traditionally, a strong grip is one in which the hands are rotated clockwise on the shaft so the left hand shows more knuckles (three or four) and the right hand will have the V pointing to the right shoulder, or even farther to the right. In this text this grip positioning will be called a "closed-face grip," a grip position that encourages a hook. One redeeming value of a hook is that it does produce less backspin on the ball and therefore frequently results in more distance. (f 6-2) Most of golf's great players hooked the ball when they were young. That fact simply demonstrates that these players were physically talented enough to generate a lot of clubhead speed with rotation of the shaft and clubface. To curb the tendency to hook excessively, the physically gifted player may move his grip counterclockwise into a "weaker" position. He shows fewer knuckles of the left hand, so the back of the left hand faces the target more squarely. If the pupil sees fewer than two knuckles we'll refer to that position as an "open-face-grip." (Illus 6-12) With a "neutral grip" the player's arms and hands hang naturally, with the hands rotated so the thumbs point slightly inward toward the body's centerline. Gripping the club from this position would find each thumb resting slightly on the opposite side of the grip's centerline. Generally two knuckles would be visible on the back of the left hand, one knuckle on the back of the right.

Illus 6-12
The left hand positioning where only one knuckle was visible to the player with the right hand matching would encourage an open clubface.

What about the pupil? Is he a strong player...does he fight the hook? Probably 75% of the answers to that question would be "No, more of my pupils slice the ball rather than hook it." Again the professional has some choices. One is to stay with what the pupil has. "If it works, don't fix it." But if the slice causes a distance loss which is critical, then a change *may be* necessary. Tom Watson's one-knuckle grip position is generally for a physically talented, strong, highly supple striker of the ball. If your pupil can match Watson's physical ability, then he can copy his grip. Lacking this ability, chances are he'll need to employ a grip with more clockwise rotation — show two knuckles, three, or in extreme cases, even more in the left hand. Whatever the choice, the right palm must be positioned behind the shaft because the player will always exert pressure on the shaft in the direction the palm is facing. Try to avoid extremes because any extreme rotation of the hands to either a closed-face or open-face position will limit the degree of wrist cock available.

Point 3

"Pressure" is not difficult to describe, it's simply how hard one is squeezing the club. It is extremely difficult, however, to explain the proper amount of grip pressure and to communicate that feel verbally to the student. We hear words such as "light" and "firm" which, of course, are only relative. Light pressure for a strong person may be "squeezing the club to death" for someone with weak hands; besides, the correct pressure is relative. A club which is traveling at a higher rate of speed (the driver) will exert more pulling force away from the player, and require a stronger grip pressure to hold than one moving more slowly (the putter). The player however does not need to consciously grip tighter as speed increases, it happens instinctively. This can be demonstrated by having the player grip the club in his left hand and raise it to waist height in front of him. The instructor can take hold of the head and tell the student he is going to pull the club from his hand but the player should resist. When the teacher tugs, the student automatically increases the grip pressure commensurate with the amount of pull. The same thing happens in the swing. It's a wonderful example of the adaptability of the human mind and body.

"A correct grip is a fundamental necessity in the golf swing."

Bobby Jones

Because of the importance of achieving the correct feel, it's good practice for a student when working on a grip change to do so in the presence of a professional instructor who can see and hear the swing to determine whether the correct pressure is being applied. Analogies seem to work well when trying to communicate feel. For example, if seeking light pressure for a more centrifugal force-type swing, "You are exerting the right amount of pressure if the weight of the clubhead can actually be sensed as though it were a rock on the end of a rope that is about to be swung." Or, "Imagine the grip portion of the club is a tube of toothpaste. Don't squeeze so hard as to squirt the paste all over the bathroom, but do apply enough pressure to let it come out gradually and evenly." Basically we should grip the club tightly enough to hold onto it. As the club changes positions, the pressure should be increased or decreased depending upon the resistance of gravity, inertia and centrifugal force.

Where in the grip should the pressure be exerted? Those players who employ a conscious striking action with the right hand usually describe more firmness in the grip and often a sensation of pressure by the fingers against the shaft. In their hand placement they may trigger the right index finger slightly down the grip for greater leverage and will have a pronounced callous on the right index finger where it rests against the grip. Obviously, with either an "open-face" (weak) or "closed-face" (strong) grip style, there will be some leverage exerted against the shaft with that part of the finger at impact. What we are talking about is the degree of leverage which is consciously applied.

"Without a proper grip no player can expect to hit accurate shots with even a fair degree of consistency."

Gary Player

Some leading players of a half century ago felt that the primary pressure should be between the pincers of the thumb and forefinger of each hand. Today's imperative, "Hold on with the last three fingers of the left hand," was not as critical a factor in their day because of the swing style which employed a great deal of hand action. That former style is seldom seen or talked about today, yet it may have some rare application to the "rigid hands player" who needs more freedom in his swing.

Point 4

The last of the four points under discussion is simple, yet critically important. It deals with *"precision"*; it's an either/or situation. That is, either one grips the club in a precise fashion (the same way each time), or is careless about the grip so that it is seldom the same.

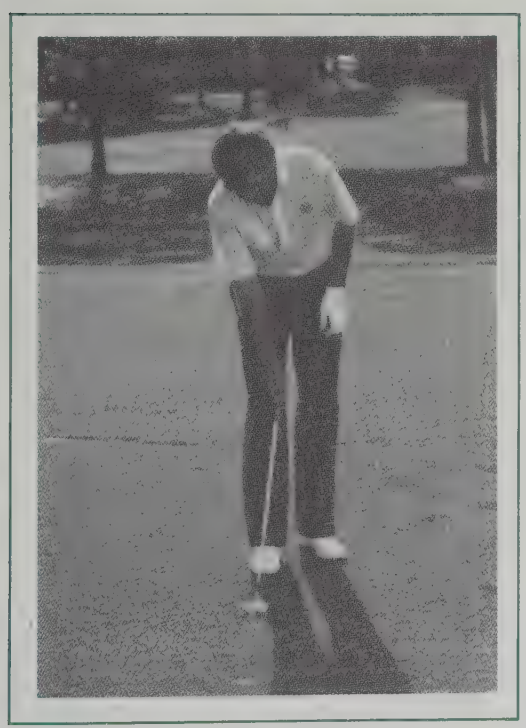
"Unless a player gets his or her grip correct, trouble begins immediately."

Bobby Locke

Altering the rotational positioning of the hands a half-inch in either direction from one swing to the next can result in a tee shot that travels 30-40 yards off line. Subtle changes in a grip can be the difference between driving the ball in the fairway or into the water, hitting the green or the bunker, making the putt or lipping it out. Golf is a game of consistency. The foundation for consistency is a *repeating* swing that must start with a *repeating* grip. Hogan, in further commenting on the subject said, "In golf there are certain things you must do quite precisely, where being half right accomplishes nothing. This certainly applies to grip."

Grip Routine

Consistency is a by-product of having a routine. The student should develop his own routine for taking the grip, one that he performs the same way before every swing. One possibility is to come in from the side; grip the club in the fingers of the right hand alone and sole it behind the ball, checking carefully to see that it is at right angles to the target line. Then swing the left hand from a natural hanging position onto the grip. (Illus 6-13) See that the club is securely braced against the heel pad and palm of the hand by the last three fingers. In this position the player can exert the greatest control. Let your student use markings (if present) on the grip to check correct hand positioning. From there, the student can waggle the club while adjusting the feet, body and the hands. The club is now ready to be swung.



Illus 6-13
Developing a grip routine is important for consistency. Here is an example of a right-hand-first style.

Two other grip routines are also pictured. (Illus 6-14, 6-15) The resulting grip or grip routine may not be exactly the one prescribed by Watson or Nicklaus, but the one the teacher has selected as being compatible with the pupil's needs. (Illus 6-16)

Some of these decisions are reached by trial and error. After making adjustments, the teacher and the pupil should settle on a grip that becomes so comfortable that the hands fall naturally into place each time. Once the best position has been chosen, make sure the pupil stays with it. *No thought in golf is more fallacious than believing the grip is something to alter every time the player wishes to correct a faulty shot pattern.*

More Observations on the Grip

1. The reason one needs strength in golf is so he can produce speed without great effort. The reason one needs strength in the hands is so that he can grip without tension.
2. Here are some simple drills to tell whether a player is changing his grip during the swing. To check for regripping, place a dime in the fleshy pad between the thumb and knuckle of the index finger of his right hand. If the dime falls out, he's regripped on the backswing. To see if he is letting go with the last three fingers of the left hand, place a tee (point first) between the club and the pad of the left hand. If it falls out during the backswing, he has opened his left-hand grip.
3. Players who have spells of erratic shot-making sometimes eliminate this malady by shortening grip placement (choking down) improving timing and squareness of contact.
4. If the student quickly wears holes in his glove on the heel pad area of the left hand, he is loosening his grip in that hand, causing friction and wear as the grip handle rubs against the glove.
5. Using an interlocking grip and placing the thumb of the left hand outside (off the grip) provides more flexibility in the wrist for those who may be arthritic, exceptionally rigid, or have had a left thumb injury. For a person with a normal range of motion, however, it tends to encourage more freedom than is normally desired, promoting spells of wildness in shot-making.
6. There are three acceptable variations of the Vardon overlapping grip. Laying the little finger of the right hand on top of the index finger of the left, as Vardon himself did. Placing the little finger in the space between the index and middle fingers is a variation which is probably more common than the original. Lastly, there is hooking the little finger of the right hand around the knuckle of the index finger of the left.

Illus 6-14
Another grip routine, starting with the left hand at the side.

"The grip is the most important single consideration in learning to play winning golf."

Byron Nelson

7. The strong, supple player can learn to draw the ball without a grip change. That's the preferred style of many good players. They would rather draw it with a modification of the swing or setup, not by modifying the grip. The former could include different body alignment, repositioning the ball in the stance, more hand and arm rotation in the swing or bowing the wrist at impact. They all are possibilities. For the less-gifted player, a grip change may be necessary to produce a draw.

8. The degree of extension of the left thumb (long or short) is an indication of how the club has been placed in the left hand. A "long thumb" is the result of a placement where the club shaft runs perpendicular to the fingers, almost straight across their base. A long thumb placement encourages a longer swing while restricting wrist action and forearm rotation near impact. A "short thumb" will find the club shaft running more diagonally across the hand. This placement restricts backswing length and encourages more hand action and forearm rotation near impact. Both extremes should be avoided if a natural swing is desired.

9. Two very useful suggestions for determining the grip are: a) Develop a natural grip in which the arms hang at the sides, relaxed, with no tension. Then let them be brought together directly in front of the golfer, allowing the right to hang slightly below the left; b) Make sure the grip matches the swing action.

Illus 6-15
And another, starting with both hands on the club, held in front to check the face.

Illus 6-16
The style is not so important, just as long as the end result is correct.

Aim and Set-up

Golf is a target game. Granted, distance must be overcome — often long stretches of it — but it is distance to a precise location. Considering the size of the target (4¼ inches in diameter) and its relation to the size of the playing field (generally over 100 acres), it is obvious that direction must always play a critical role. A good golf swing produces the ball/club contact which overcomes the problems of distance and direction. Although scoring in the game is determined by a high percentage of skills other than the full swing, golfers nonetheless tend to get caught up in the intricacies of the elusive swing motion. However, many who follow this quest fail to recognize that no matter how efficient and precise the swinging mechanism becomes, it is of little consequence unless aimed correctly.

Is aim important? Consider this. A perfect swing made in the wrong direction will produce a most imperfect shot. Timing, rhythm, speed and square contact are of little value unless they produce a shot that travels toward the target. What a waste to make a good swing and come up with a bad shot because of faulty aim!

What does one need to aim in golf? First the clubface, then himself. The "himself" includes the eyes, shoulders, hips, knees and feet. Don't think that correctly lining up one part of the body automatically aligns the others. Most assuredly it does not.

If the player's objective is to hit a straight shot to the target, it will have to be accomplished in the following way: The direction of the clubhead must be travelling on a path toward the target at contact and the face must be square or at right angles to that path. *Whatever combination of body and clubface positions which consistently accomplishes these objectives is the correct aim for the golfer.* Read the above last sentence again! It doesn't say you *must* assume your set-up with your stance or clubface square, open or closed. It says, "Whatever combination of body and clubface positions which consistently accomplishes those objectives"...those objectives are "path to the target and face square," at impact.

How We Aim

You may be better able to appreciate the problems associated with developing a consistent aim in golf if you compare it to aiming in other sports.

Think of how a rifle is aimed. The barrel of the delivery system at short range is pointed right at the target. Look down the barrel (or sighting device) with the sighting eye. When the barrel is lined up with the target, fire! In golf, if the eyes, feet, hips or shoulders were the delivery system (equivalent to the gun barrel,) one would aim them at the target. But they are not. The delivery system (the clubhead) can be positioned on a line as far as two-and-a-half feet in front of the sighting device (the eyes).

The eyes have a different perspective than the clubhead or even the left shoulder, which is a primary controller of the clubhead's path. The eyes view the shot from a place in-between the clubhead and shoulder. The fact that the right eye is farther from the shoulder line than the left eye when your head turns to look at the target may be part of the reason that right-handers frequently aim their shoulders too far to the right. They are trying to put their shoulders on line with what their sighting eye sees as it looks from its perspective.

Now, add that to the fact that the positioning of the feet, knees and hips have an influence on the alignment of the shoulders at impact, and it is easy to understand why even the greatest players in the world have one question they ask teachers more than any other, "Where am I lined up?" If they have trouble with aim, then certainly the average student will. Aim is one of golf's most important fundamentals. Strangely enough, it takes the least amount of natural talent but requires the greatest amount of attention.

The aiming of the left shoulder is, indeed, important to anyone trying to make a pure golf swinging motion. When employing this swing style, the direction the clubhead travels will be influenced by where the shoulder is aligned prior to impact because the shoulder will tend to return there. That alignment in a pure swinging motion influences the direction in which the left arm is moving. The swing path tends to follow the shoulder alignment. *Those who make a free swinging motion with no manipulation should definitely align their shoulders at address parallel to where they want the clubhead to travel.*

Aiming the Clubface

There is general agreement that what we must try to align on the clubface of an iron is the leading edge. (Illus 6-17) On a few iron club brands, the top line corresponds with the leading edge and can be used in aiming the face, but that's not true of most. Almost all irons have scored horizontal lines, but not all have vertical bracketing lines. Some brands have special lines to help you aim, which can be useful, particularly to the new player.

On wood clubs, the top line on the face is the aiming line. Decals that run at right angles to that line can be helpful if they are put on correctly (which is not always the case).

A few companies place a T-line or arrow on top of their woods to help in aiming; others use a contrast-colored insert which can serve as an alignment aid.

Whether playing an iron or a wood, the aiming process should start at some point away from the ball (preferably behind it). Visualizing the shot the player is about to play is the first step in aiming. If he plans to fade or draw the ball, that decision will have an influence on where to aim. If there is trouble to play *away from* or an advantageous place to play *toward* rather than on a line to the pin, visualizing the desired shot will help produce the correct aim.

Illus 6-17
Aiming the clubface (in particular the leading edge) to the target is one of the first steps in a good pre-shot routine.

Aiming the Body

When we speak of "aiming the body" we are referring to the *alignment* of the various body parts in relation to the target. (Illus 6-18) Aiming the body is more difficult than aiming the clubface. There are several components to aim, and they aren't necessarily aimed at the same place.

The aiming of our body is strongly influenced by what we see. The eye is a marvelous and complex mechanism, and sight is a wonderful gift, but we are not all equally gifted. Two people looking at the same object may not perceive it in the same manner. There are great individual differences in visual acuity, breadth of field, depth perception and the ability to aim at a target. Therefore, what the student sees and the teacher sees may not be the same.

An Example of Parallel Aim

Look at the ball-hitting machine in the illustration. (Illus 6-19) The swinging arm (the equivalent of a player's left arm) repeats, with the same path precision, time-after-time. It is directed on its path by the alignment of the upper structure of the machine (the equivalent of a player's shoulders.) The lower part, the base support structure (equivalent to the legs and hips), happens to be parallel to the upper part but does not have to be. It could be anchored with the base supports pointed to the right or left of the target without severely affecting the machine's performance. The human body can do likewise (Lee Trevino is an example), but only to a small degree compared to the machine. Any large deviation from parallel in the lower part of the body will influence the upper body's alignment during the swing.

Illus 6-18
Aiming or aligning the body consistently and correctly is one of golf's more subtle and difficult problems.

Variations

What about the not-so-natural golf swings — the ones that are manipulated? The arms are capable of independent movement from that of the body. Though influenced by both shoulder alignment and shoulder inclination, the arms can operate on quite a different plane and path if directed to do so. Manipulators of the club can have a shoulder alignment that deviates from the conventional parallel left, and still get the job done. In other words, they could aim somewhere other than where a more natural swinger of the golf club aims and still make the clubhead travel in the correct direction.

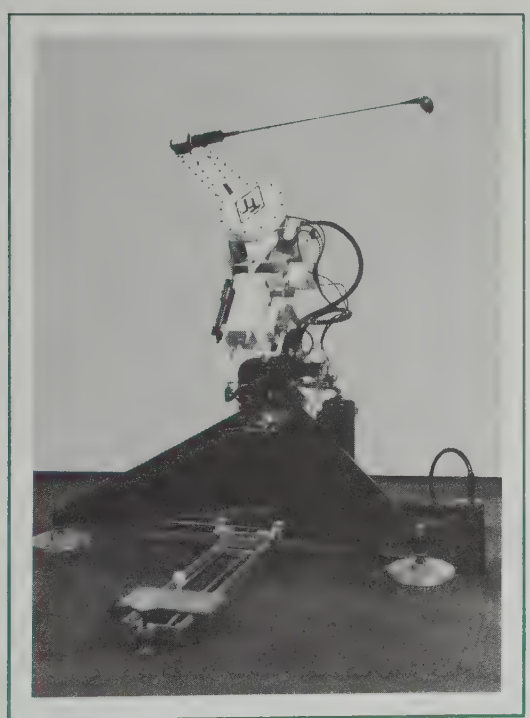
f 6-3 Some players use a 1 to 2 ft. target; others 20 to 30 ft. in visualizing the ball path starting direction.

The shoulder line could be square (parallel left) with the hips and feet progressively more open, as in the case of Hogan, or the shoulders, hips and feet could be closed (aiming right), as with Sam Snead. But a swing accommodation can still produce an on-line repeating action. The question then arises, "What is wrong if the ball flight is consistent and correct?" The answer is, nothing. It's not wrong, only different.

Spot Aiming

If one is to copy an aiming procedure, one might use that practiced by the best, Jack Nicklaus. Have your student start from behind the ball, visualizing the shot. Then draw a line from the direction the ball is to start, back to the ball. Have him pick a spot on that line somewhere three to six feet in front of the ball and sole the club so that the leading edge is square to the spot out in front of the ball. (f 6-3) It may be a divot mark, some discolored grass, a broken tee, a clubshaft stuck in the ground and used as a ball starting line, whatever. Complete the setup by using that intermediate target spot as a reference point, then visually checking the line all the way to the target, and finally making a swing to send the ball over the spot. Visualizing the swing path approaching the ball as a slightly curved, painted stripe on the grass could help. Actually painting the stripe there for the student will help promote this practice.

Experimenting with aim and alignment should be limited to determining how the student's body most naturally produces an inside to on-line to inside swing. Then stick with it. If the ball still does not go where desired, make the changes for the student in grip or set-up rather than developing a new swing path to compensate for some other error. He will literally then be on the "path to better golf."



Illus 6-19
It is the dream of golfers to produce the kind of consistent shots that come from an "Iron Byron," which is the result of being able to repeat basic fundamentals or principles.
Photo courtesy of True Temper

The Norm

The alignment pattern of feet, knees, hips and shoulders parallel left of the target is probably the most sensible standard from which to start. It may not be where the student ends up. Adjustments to this standard may need to be made because ligaments, bones and muscles function or are structured differently from one pupil to the next or they may have been damaged by injury or suffer from disuse. Therefore, the correct alignment pattern for each pupil will need to be arrived at by some experimentation.

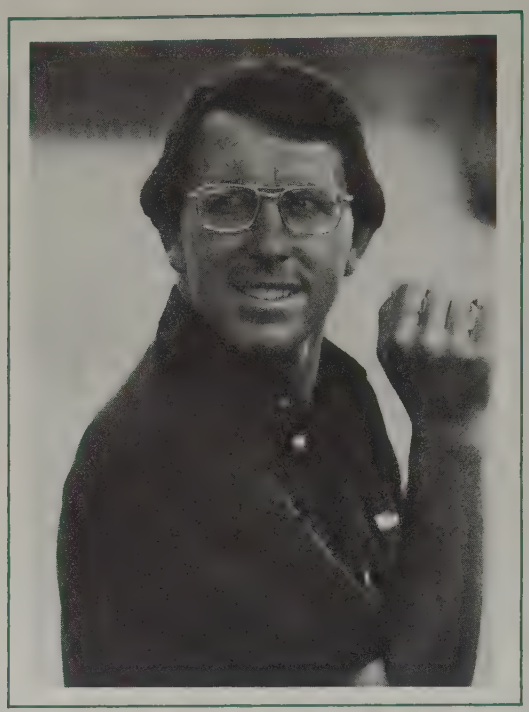
Make it clear to the pupil that the target at which he is aiming is not the ball. The target is where the ball is to be sent. Focusing too much on the ball tends to cause a hit impulse and create tension in the impact area. Teach swinging the club *through,* toward the target, not *to* the ball.

Vision

Several visual factors can influence one's ability to aim. The effect of eye dominance on aim, for example, has been discussed for quite some time by those exploring the intricacies of golf performance.

Teachers of students who don't know which is their master eye (more correctly, sighting eye), have been tested for this by having them hold a pencil at arm's length, aligning it with both eyes on some object across the room, then alternately having them close one eye, then the other. The image that remained the same when viewed with one eye or both eyes identifies the master or dominant eye. Is this useful? Noted opthalmologist Dr. Curtis D. Benton Jr., also a golfer and contributor to *Sr. Golfer Magazine,* makes this observation: "The concept of a dominant or master eye has received more emphasis than it deserves. The test described identifies the sighting eye, but not necessarily the dominant eye. A golfer who usually sights with his right eye may sight equally well with his left eye if something is blocking the line of sight of his right eye, for example his nose, eyeglass frame, or a tree. With both eyes regarding a distant target, the flag on a green for example, the line of sight from each eye is so nearly parallel that the difference is negligible. The primary function of the two eyes together is to more accurately judge depth and to detect subtle variations in contour. A player with two good eyes looks at the ball with both eyes nearly from start to finish of his golf swing. While putting, a golfer may tip his head to right or left, seeming to emphasize one eye more than the other, but that probably makes little real difference. (f 6-4) Many golfers have one eye that has defective vision (from refractive error, injury or disease), but it makes no difference which eye is good or bad in the execution of his shots. We know golfers with one blind eye who aim quite accurately."

As age progresses, sight deteriorates. Vision problems and glasses become a reality in the senior golfer's world. (Illus 6-20) A young teacher must appreciate these difficulties. To get a better understanding, see Appendix 16-C.



Illus 6-20
When golfers have to wear glasses to aim correctly it presents added problems, particularly in rainy weather. Yet PGA Tour players like Hale Irwin (pictured) and Tom Kite have overcome those problems.

Set-up

f 6-4 Though tilting the head may not make a difference in aiming, it does in the stroke or swing. Cocking the head to the right *encourages an inside swing path, to the* left, *the opposite.*

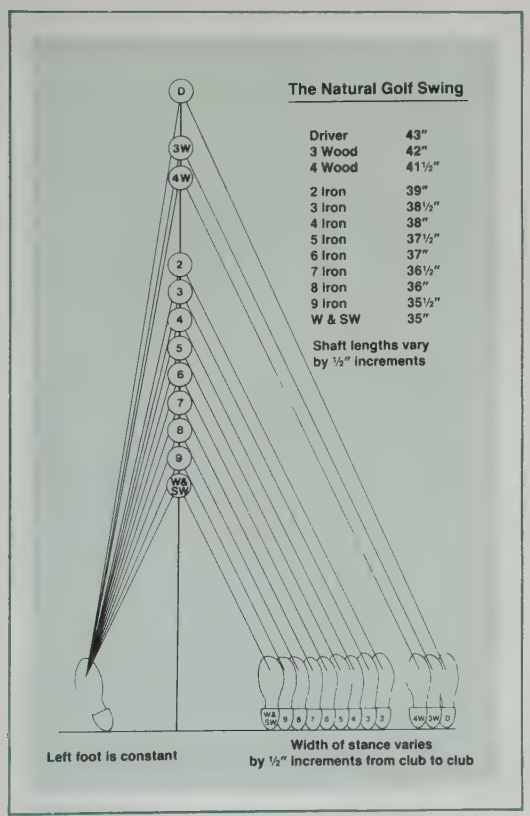
Part three of the pre-swing trilogy after grip and aim is "set-up." Though not a new golf term, *set-up* is still less well-known in the game's lexicon than *stance* and *address.* While address and set-up may be quite similar in the minds of some, in this book "Set-up" is used in a more comprehensive way. It includes foot placement, ball positioning, the body's total posture, muscular readiness and weight distribution. A player has a successful set-up when he has adjusted his body to the correct attitude in relation to the ball, the lie and the desired shot.

Ball Position — Importance

f 6-5 Even the constant ball position players will occasionally move the ball location for the shorter iron shots back to alter the ball's trajectory. When a specialty shot such as low into the wind is called for, then all normal ball placement is dismissed.

Take the "perfect ball-hitting machine" like the USGA's "Iron Byron" (made by True Temper®) and move the ball three inches forward from its normal tee location, and the machine will produce "grounders." Move the ball two inches away from the programmed swing arc toward the toe and the result will be sideways squibs to the right. There is no magic to a perfect swing if the ball is not in the desired position for the clubface to squarely collide with it. The ball must be positioned to get in the way at the right part of the swing.

Ball Position — Location — Forward and Back



Illus 6-21
A useful diagram showing a constant ball position and a variable foot placement. (From The National CPGA Teaching Manual, authored by George Knudson.)

There is no one universal ball location for everybody but there are some guidelines. Assuming the ball is in a normal flat lie on the ground and a standard trajectory with an iron shot is desired, where should a player locate the ball? The answer is, "just prior to the clubhead reaching the bottom-most portion of the forward swing arc." That will generally be somewhere to the left of the center of the stance. How far will depend partly upon the degree of lateral weight transfer the player makes from the right to the left side on the forward swing. If the player's lateral motion is limited, the ball should be closer to the center. Likewise, if the player has poor flexibility or balance problems due to heredity, age or physique which allow for little weight shift, then the ball location would also be more centered, but this is a compensation. Those preferring a more rotary swing with an emphasis on swinging the arms and hands, also generally play the ball farther back; whereas those with more body weight shift, using more arm and body swing play it more forward. (f 6-5) A *constant* ball position method as opposed to a *variable* ball position is where the ball is played progressively back as the club lengths shorten. Nonetheless, constant ball positioning does have a variable, the right foot. (Illus 6-21) For the longer shots like the #2, #3 and #4 irons, where bigger swings require a wider base for better balance, the right foot is spread farther from the left. This moves the swing center and center of body rotation (the spine) farther to the right and makes the angle of approach to the ball shallower, thus

taking a shallower divot. Conversely, with the same ball position but the right foot drawn closer to the left for a #8, #9 iron or wedge, the swing center and center of rotation move forward, steepening the angle of approach thus taking a deeper divot.

With a ball placed on a tee peg the angle of approach should be decreased as the height of the tee is increased. When hitting a driver, a steeply descending approach arc to the ball provides less effective force, more backspin and, therefore, a shorter driven ball making the shot undesirable. To decrease the approach angle to make it closer to zero degrees, the ball can be moved farther forward nearer to inside the left heel, or the swing center can be set farther back by spreading the right foot farther to the right.

"Most people don't realize it, but the primary difference between a good golfer and a bad one lies in the grip."

Julius Boros

The left foot is the most common reference point for ball location. Some players and teachers however, suggest that the positioning of all shots be related to the lowest point of the swing opposite the middle of the left shoulder. For a wood shot, this puts the ball also directly opposite the left shoulder with the hands covering the line of sight to the left toe. For a short iron the left shoulder still is in line with the swing's low point, which is now an additional 3 to 4 inches farther forward, thus the ball position ends up farther back. The hands now block the line of sight to the left heel.

Most teachers prefer all woods to be played either off the left heel or up to two inches back, toward the center; the irons 2 to 4 inches back from inside the left heel. Some want all irons played from the middle of the stance and all woods from two inches inside the heel. There is yet to be an absolute consensus on this topic.

Whether the choice is a fixed or variable ball position, using the feet, the club or some other part of the body as a reference point, this fact should be made clear: *Ball position is an important factor that must be given precise consideration on each swing if one is to hit consistent shots.* Locate it, measure it, and check it frequently, just as one would do with the grip.

Ball Position — Away From or Toward the Body — Close or Far

The next decision is the distance a player should stand from the ball. This is influenced by the golfer's body structure, posture, length of club and his swing style. It's obvious that a bulky person will need more room to swing his or her arms in order to clear the chest. A tall, angular-body-type can clear with the ball quite close. This distance from the ball affects the upper body tilt, causing most tall players to lean forward more and have upright swings, and short, stockier players to lean forward less and have flat swings.

"You get rewarded at the bottom end of the club by what you do at the top end."

Jerry Barber

Body shapes alone don't determine distance from body to ball, technique also has an influence. The hand and arm hitter-type player, particularly the very dominant right-hand strikers, tend to throw the club arc away from the body in the forward swing. Consequently, they compensate and place the ball farther away. This ball position is frequently used to offset the error of hitting behind the shot. While

Illus 6-22
A good set-up position which allows the player to move with power yet stay in balance.

moving the ball farther away does reduce the chance for this error, it increases the possibility of some other type of mishit, in particular a poorly directed swing path. The body players who feel more connected let the legs and center of the body initiate the forward swing, and don't "throw the club away" from the body. This allows them to place the ball nearer to them.

To find that "correct distance," a player, starting from the erect position, should bring his arms down onto the chest until slight pressure is felt. Next, bend forward at the hips until the club nearly touches the ground. At this point he should "settle-in" with a slight flex in the knees. (Flexing too deeply in the knees moves the center of gravity back on the heels rather than in the middle of the feet.) The back will now be reasonably straight, the arms hanging so they are extended, but relaxed, shoulders over the toes, the hands a little inside a vertical line dropped from the eyes. There should be no sensation of reaching or being crowded. The butt of the club should be pointed reasonably close to 90° to the spine angle, as an object swings fastest at 90° to its axis. The most important check is that the player be in balance. It is common to find golfers who stand too far from the ball, but rare to find them too close. Simply stated, the correct distance from the ball in the set-up position should allow the golfer to make contact with the ball without having to search for it. (Illus 6-22) No mid-swing manipulations or corrections. Just a proper body attitude that puts the clubface on the ball when you turn in one direction and return in the opposite direction.

Posture, Balance and Muscular Readiness

One of the most common words used in teaching golf is, *relax!* While the golfer in setting up to the ball should not be tense, neither should he be relaxed in the sense of being limp. Golf is a game of differential relaxation, of muscular reciprocal enervation (one group of opposing muscles is relaxing while its opposite is contracting). This is certainly true in the set-up. The body should look "proud," head up, not slumped on the chest trying to keep it down, arms extended, but not locked, back straight but not rigid, grip firm but not tight, legs and feet solid but not wooden. It's an athletic, "at-ready" position common to any sport before movement begins.

Think of a baseball shortstop getting ready to field a grounder, a basketball player in a defensive guarding position, a football quarterback about to receive the ball from center, a skier on a downhill run, a swimmer preparing to dive into the water at the start of a race — all ready for action; they are bent at the knees, balanced, with the weight slightly favoring the balls of the feet in anticipation of movement. There are some differences, but there are enough similarities to show that golf, like other sports, requires that the performer prepare the body for action. The only difference is that golf is motion without locomotion. It's movement without the body traveling "anywhere." Golf requires both precision and power. Both are influenced by how the swinging apparatus is "set up" to perform.

Weight Distribution

Balance is critical to athletic performance. In golf, one deals with balance in two directions, left-to-right balance and front-to-back balance.

As in the other sports examples of athletic "at-ready" positions, the forward-to-back balance in the set-up will be near the balls of the feet for the full swinging motion. The heels and toes are used as stabilizers like training wheels on a child's bike. Once the swing begins, the weight then shifts toward the right heel on the backswing and toward the left heel on the forward swing.

Only in the short game (chipping, pitching and putting), where the ball is played closer to the body, does the center of balance shift more toward the heels in the set-up. There is, in fact, a progression of weight distribution from the balls of the feet to the heels as a player works from a long to a short club. It is a natural adjustment. But, if one is not sure that he is adjusting properly, here is an easy way to check. On short shots, the forward-to-back balance should allow one to wiggle the toes when set. For full swing shots, one should be able to comfortably tap the heels on the ground.

"Yes, you're probably right about the left hand, but the fact is that I take the checks with my right hand."

Bobby Locke (Commenting on criticism of his left-hand grip position).

Variations

There are exceptions. The hand and arm players tend to balance more toward the heels on their shots. However, the body player is more on the balls of his feet for all shots (even chips and pitches). Of course, a player can go too far in either direction.

For women, here's an additional note. To get the weight more toward the balls of one's feet one must counterbalance the upper trunk's forward bend with an equal action in the opposite direction. In other words, allow the derriere to protrude. Since women are conditioned to regard this posture as "unladylike," it may not feel comfortable at first, either physically or mentally. But, pulling one's seat in and shifting the weight too far back on the heels will hurt a player's golf more than pushing the seat out will hurt a player's pride! (Illus 6-23)

Illus 6-23
It may be more graceful to have the seat pulled in, but it encourages an upper body that is too vertical plus more weight on the heels and a deeper knee sit than is correct. This is poor mechanics.

Left-Right Balance

What about left-to-right balance in the set-up? Should one favor the left foot, right foot, or a balanced weight distribution in the set-up? Hand players will tend to stay more left, from the set-up through the swing. Some weight will shift to the right but not as much as other players since hand players look for their power from the leverage of arms and hands. Body players will start more balanced or to the right in the set-up and shift more to the right in the backswing, before moving through to the left.

One criterion for left-right balance is the angle at which the player plans to make contact. More left in the set-up when needing descent, less left for a shallower angle of approach.

Width of foot placement influences left-right balance. The closer the feet are together, the easier it is to place the weight over the left foot, toward the target. Too narrow a stance, however, increases instability when greater force and more motion in the swing is needed. As the stance widens, one's center of gravity lowers and shifts more to the right in relation to the ball, influencing the swing's angle of approach. Doug Sanders, for example, is a low ball hitter. He has an extremely wide stance, causing his swing angle of approach to flatten, putting less backspin on the ball and reducing its rise. Too wide a stance will restrict the pelvic turn over the right leg. And because of this, the shoulder turn, too, will make it more difficult for the player to transfer weight effectively.

f 6-6 An alternative to Grip, Aim and Set-up that may be easier for the students to remember is PGA — Posture, Grip and Aim.

Width of foot placement should be determined not only by the desired weight distribution but by the amount of balance necessary to support the swing effort. Chip shots and putts can be executed with the feet together because the physical effort and accompanying body motion is minimal. *As the golfer's motion increases, so must the width of his foot placement. The maximum width is exceeded when it diminishes one's ability to readily turn and transfer weight from one foot to the other as one must in the full swing.*

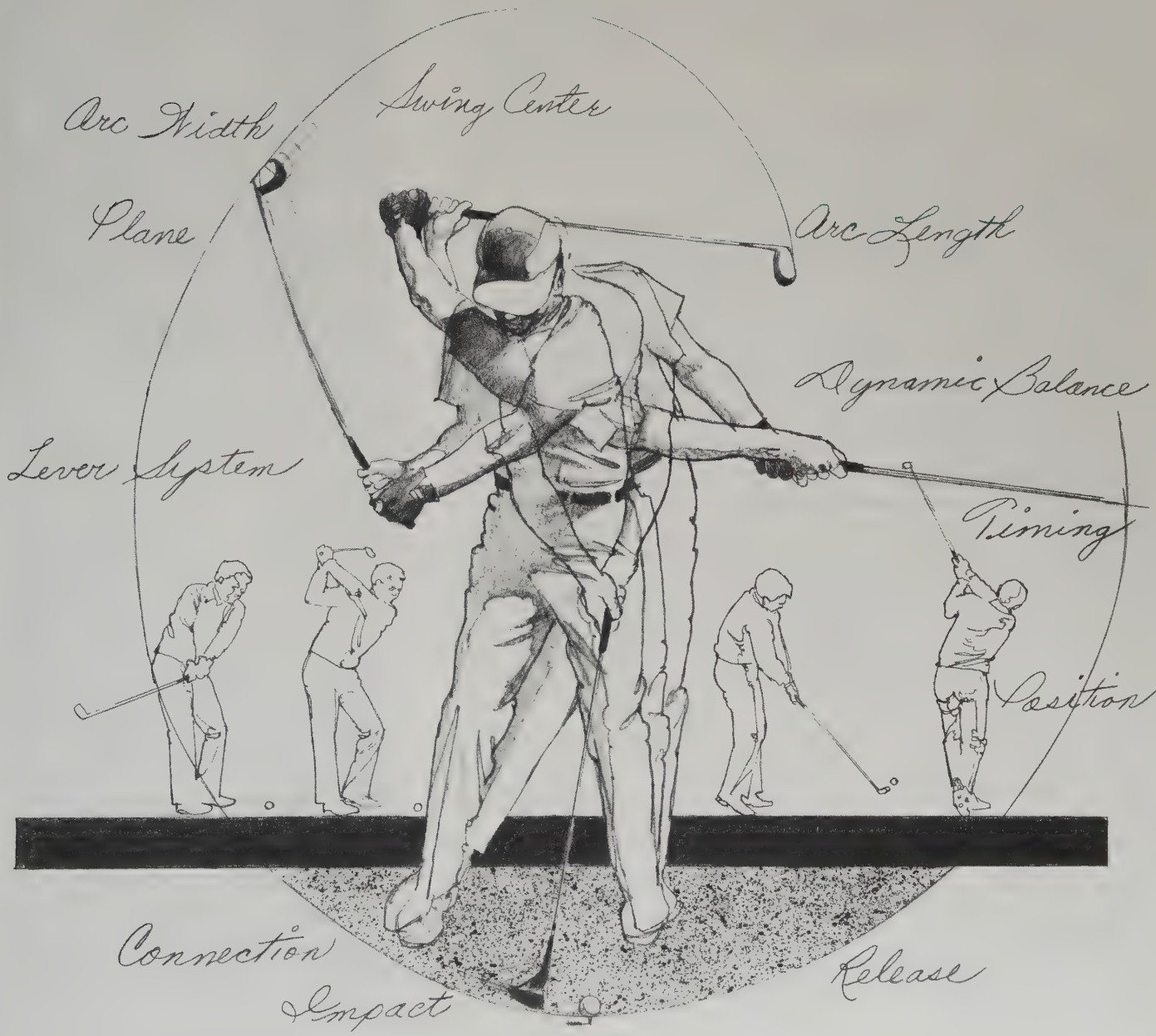
The Importance of Grip, Aim, and Set-up

It should now be evident that even "Iron Byron" becomes a hacker by making any one of three pre-swing errors: 1) Taking a poor grip, 2) aiming in the wrong direction, or 3) putting the ball in the incorrect position in relation to the swing. Knowing this, the teacher must stress the essential pre-swing principles of Grip, Aim and Set-up with all students in all shots. These are an integral part of every golf stroke. (f 6-6)

CHAPTER 7

In-Swing Fundamentals:

The Remaining Principles



CHAPTER 7

In-Swing Fundamentals: The Remaining Principles

Golfers live on hope and promise: the hope that tomorrow will be better, and the promise that a newly discovered swing tip will contain "the secret" — the key that will unlock the mystery of the repeating, power-filled, yet effortless golf swing. More than likely those words "hope" and "promise" reflect why most people take lessons; they are *hoping* for better golf, and professional instruction is the *promise.* How are their chances of finding "the secret" with their professional? They should be told up front what they can expect from their investment. If they are looking for a perfect golf swing, that fits everyone, it should be made clear that it won't be found anywhere, given a lifetime to search. That quest falls into the "Fountain of Youth," "Shangri-La," and "Meaning of Life" classification — seemingly there, vigorously pursued, yet never quite attainable. Good advice is: Don't chase that myth! There is no *one* perfect golf swing for everybody.

If they are looking for help to find their best swing, that's a different story. Everybody has a swing style that is best for them. (Illus 7-1) Finding it is a challenge, maintaining it is a struggle, and adjusting it as they age is a necessity. That is a worthy goal for both the pupil and the teacher.

Illus 7-1
Miller Barber has had a most successful career with a unique swing style.

Each student must be considered unique with his special natural talents, some deficiencies, and more than likely a few idiosyncrasies. The approach in learning should be for professional and pupil to jointly discover that "best golf swing." This discovery can be aided by understanding the Ball Flight *Laws,* dealing with the *Principles* which influence those Laws and selecting the appropriate *Preferences* to produce the desired results.

It is not good thinking to say, "Since there is no one perfect swing, it doesn't make any difference which method I teach." That is far from the truth. An even greater mistake than believing that there is only one correct way to swing a golf club is for the teacher to allow a student to suffer the frustration of switching from one method to another without seriously trying to identify a method that will work for *him.* It can't be emphasized enough how important it is for the pupil and teacher to: (1) develop a set of preferences for playing that get the best results, (2) to know precisely what is attempting to be done, and (3) to practice until he can do it.

There is a best swing for every golfer, which includes a specific grip, alignment, set-up and swing pattern which best suits: (A) one's abilities, (B) one's temperament, and (C) one's body. It is important to recognize these three as keys in the search because the answers chosen will vary according to the traits.

"His swing reminds me a lot of a machine I once saw at a country fair making saltwater taffy. It goes in four directions and none of them seem right."
Buck Adams on Miller Barber's swing

It may help reduce a student's apprehension by saying the swing is natural, and then for the teacher to help make the style as natural as possible for that player. But, in fact, not one student in five million would pick up the club and by instinct swing it like a proficient player. The golf swing is a highly conditioned action requiring considerable practice.

What is Simple is not Always Easy

"I do not advocate unorthodox golf but I make provisions for it."

Homer Kelley

Swing styles of even the greatest players vary in their mechanical efficiency. Some are composed of a complex series of adjustments, manipulations and compensations. Others are simple and straightforward with minimum chance for error. What is mechanically efficient may be extremely demanding physically. "Keeping it simple" may require the strength and flexibility of a conditioned athlete. Using the position at the top of the backswing as an example, we find that a flat left wrist position throughout the swing is mechanically simple, but for many, physically difficult. They may find the cupped (concave) left wrist position much easier to perform even though it may be more complex from a purely mechanical standpoint. (Illus 7-2) Conversely, a bowed (convex) left wrist position used by some Tour players might for the average student be physically *impossible.* The plain fact is that some swing styles are more physically demanding than others. If the student is attempting to perform a swing style beyond his current physical capabilities, the teacher has the option of: (1) getting the student to condition his body to perform this action or, (2) letting him continually fail when attempting it in his present physical state or, (3) changing the swing style.

Two Swing Classifications

PGA professional David Leadbetter, teacher of several world-class players, teaches primarily two basic swing styles. He calls them: (1) *Flo-Swing Concept,* and (2) *Positional-Swing Concept.* The guidelines he uses in determining which style to use are shown below:

Flow-Swing Concept *(Lighter — more centrifugal force)*	**Positional-Swing Concept** *(Firmer — more leverage)*
Visual Players	Kinesthetic Players
Less Athletic Players/ Less Athletic Swingers	Athletic Players/ Athletic Swingers
High Handicap/Beginners	Low Handicap
Women	Hard Practicers
Juniors	Long Hitters
Seniors	Long-Term Goals/Swing Building
Short Hitters	
Slicers	
Short-Term Goals/Quick Fix	

This approach recognizes that not everyone who comes to the lesson tee wants or expects to go on "the Tour" or even win the club championship. And many of those who have that desire, do not have the talent. At the same time, Leadbetter recognizes that pupils develop and can move from one group to the other; he never wishes to limit anyone.

Illus 7-2
PGA Tour professional Fred Couples prefers a cupped left wrist position which encourages this more "relaxed" finish.
Photo by Stephen Szurlej

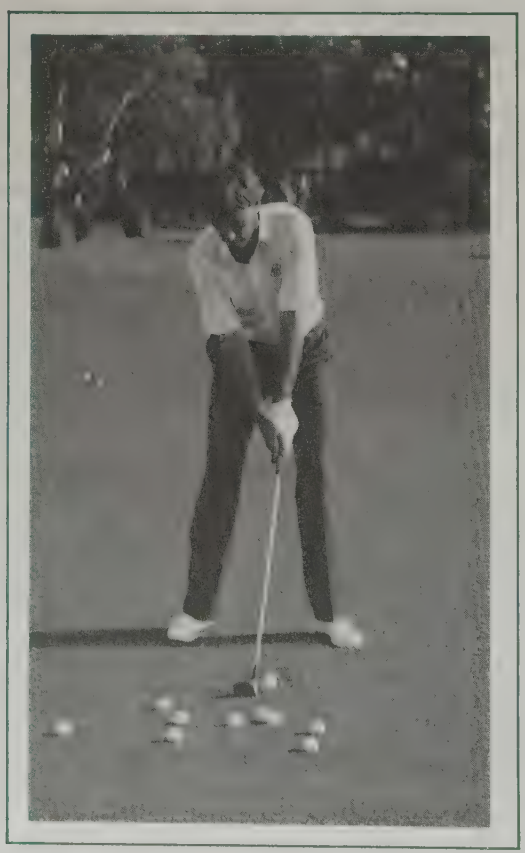
Finding A Best Swing

There are five important steps a pupil can take with his professional to help find his best swing: (1) *Learn cause and effect relationships* in determining the outcome of golf shots, (2) *become familiar with the principles* of making a golf stroke and how variations affect the result, (3) through experimentation, logic and with professional help, *choose a style* or technique compatible with what the pupil is trying to accomplish and what he has with which to accomplish it, (4) learn to *appreciate one's physical assets and liabilities,* how to use the advantages and compensate for disadvantages, and (5) once the preferences have been selected, *stay with them and practice.*

"The good player swings through the ball while the awkward player hits at it."
Ken Venturi

Developing An Understanding

Cause and effect, which has been mentioned in Chapter 2, may be gradually introduced to the student through demonstration, visuals from articles or books and with teaching aids. The pupil will learn to become increasingly self-sufficient when the teacher tests him by having him hit shots and asks him to describe the root causes, i.e., *Laws.* "The ball started left of target and moved markedly right so it was a left of target swing with a wide-open club face." Teach the student to "read" and describe his shots to understand cause and effect.



Illus 7-3
The "ABC Method" — a simple approach — A is the preparation to swing.

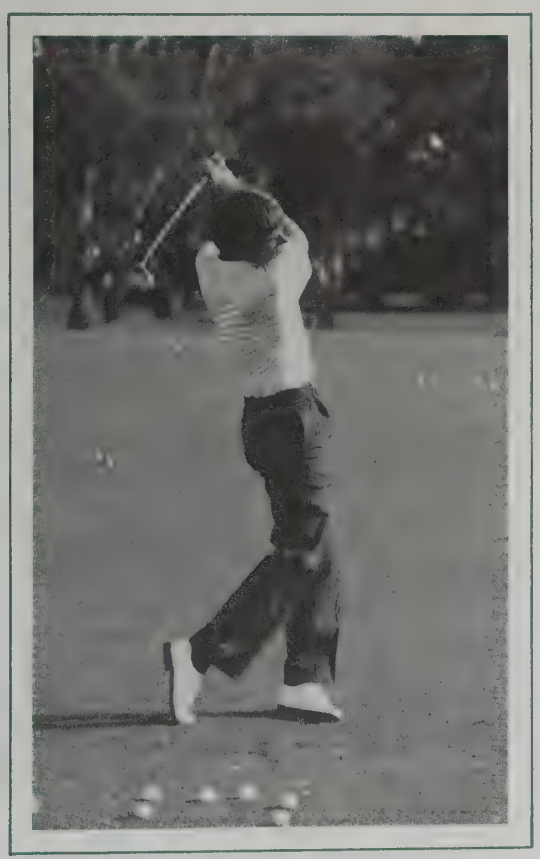
Illus 7-4
B is the top of the swing.

"Those commonalties of the good players are the basic fundamentals of golf technique. They haven't changed much in an awful long time, and there aren't a whole lot of them. But they have to be understood and mastered if you are to play the game consistently at or close to the maximum of your potential."

Jack Grout

"If a great golf swing put you high on the money list, there'd be some of us who would be broke."

Ray Floyd



Illus 7-5
C is the finish of the swing.

Next comes an understanding of *The Principles,* although again the professional need only select those which are essential to his teaching method or critical to this particular player's needs. For example, he may say "Our method is very simple, we are going to do three things, our ABCs.

A. Teach you the preparations before the swing. (Illus 7-3)

B. Get you to shift the weight to the right as you swing your arms over your right shoulder. (Illus 7-4)

C. Get you to shift to the left and swing your arms over the left shoulder. (Illus 7-5)

That is a nice approach if one wishes to keep it simple. Of course, those three things incorporate the following principles:

A = Preparation: 1) Grip, 2) Aim, and 3) Set-Up

B = Shift weight to the right and swing arms: 1) Dynamic Balance, 2) Swing Plane, 3) Lever System, 4) Position, 5) Swing Center, 6) Arc Length

C = Shift to the left and swing arms: 1) Timing, 2) Release, 3) Arc Width, 4) Connection, 5) Impact.

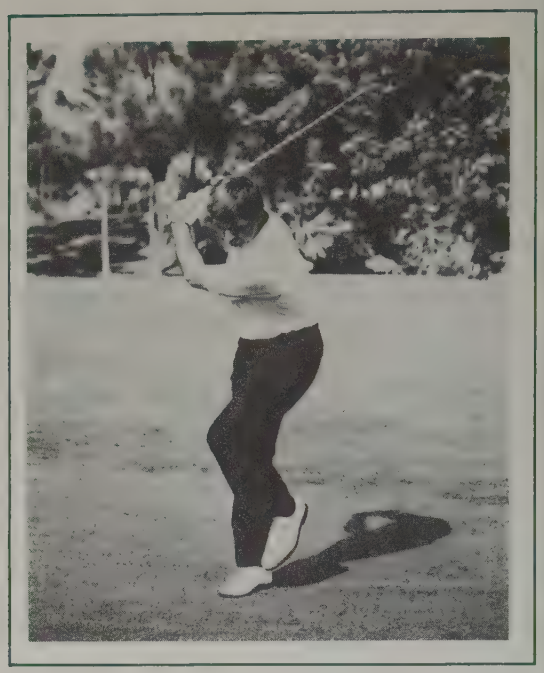
So, while the teacher in this case presents the ABC's he must deal with *Principles* in whatever fashion will make it understandable to the student. Listed below are the In-Swing *Principles* followed by an explanation of their importance and some observations on their applications.

IN-SWING PRINCIPLES

Dynamic Balance	*Position*
Swing Plane	*Width of Arc*
Lever System	*Length of Arc*
Release	*Swing Center (Rotational)*
Timing	*Connection*
	Impact

Dynamic Balance

In reviewing the physical talents necessary to play any sport, it would be difficult to study the subject without mentioning "balance." Adding the word "dynamic" simply lends the idea of motion to what could otherwise be thought of as a static position. For an example of dynamic balance, have the pupil take a ball in his dominant hand and imagine that he is going to throw it a long distance using a sidearm motion. As he prepares to throw, the body will coil and the weight instinctively shift to his rear foot. Now the body is primed for action, like a boxer ready to punch, a quarterback ready to throw, or a shot-putter ready to release. Completing the imaginary throw, the weight will transfer to the forward foot. *In every striking or throwing motion, maximum power is achieved when the motion is directed toward the target by transferring the weight from the rear foot to the forward foot.* (Illus 7-6, 7-7) That principle is no different in the golf swing. Yet golfers will frequently neglect footwork, trying to strike with arms only, or using a weight transfer that is the reverse of what it should be, going from the forward foot to the rear foot. (Illus 7-8, 7-9)



Illus 7-6
Dynamic balance is being able to transfer weight correctly in the swing. In all striking or throwing motions it moves from the rear foot...

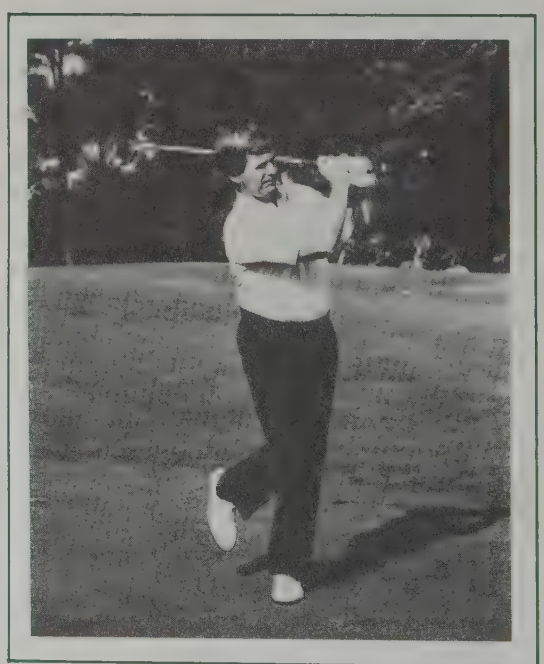
Being able to transfer weight by using one's feet and legs correctly is so high on the scale of golf priorities that it is senseless to offer a pupil further instruction until he can accomplish a basic weight shift. Why? What does dynamic balance contribute to a swing? Using the legs properly does three vital things in the golf swing:

(1) It provides the platform for the rotation of the body and swinging of the arms.

(2) It adds impetus to the total movement.

(3) It places the body in a position to strike the ball with a clubface that is traveling in the right direction at the correct angle of approach.

Dynamic balance is one of golf's fundamentals which doesn't allow for much latitude. Either one transfers the weight from the back foot to the front, or one doesn't. But within the movement there are some details worth examining. When the weight has reached the right side in any of the examples we've used — underarm throw, football pass, shot put, punch, or golf swing — the right leg is: 1) always flexed, and 2) never rolled to its outside. When these two positions are not observed either power or control is lost. The amount of flex may vary individually. The hands player of a couple of decades ago, who had an open-faced position at the top of the swing, straightened the left leg more in the forward swing and called it "hitting against a firm left side." By using this straightening action the player braced to halt the forward motion of the body and left arm so the clubhead could be "whipped through" with the face closing. This was done in conjunction with the head kept down and back, further encouraging "whipping through the hands." The player produced an emphasized rotation of the clubface so that the toe passed the heel and literally guaranteed a draw or hook, the popular shot shape of the classic era.



Illus 7-7
...to the forward foot.

The modern Tour player keeps the forward pivot point (the left knee) slightly flexed as he unwinds and moves through the shot. (f 7-1)

Follow-through is an important element in skill involving powerful propulsion of an object.

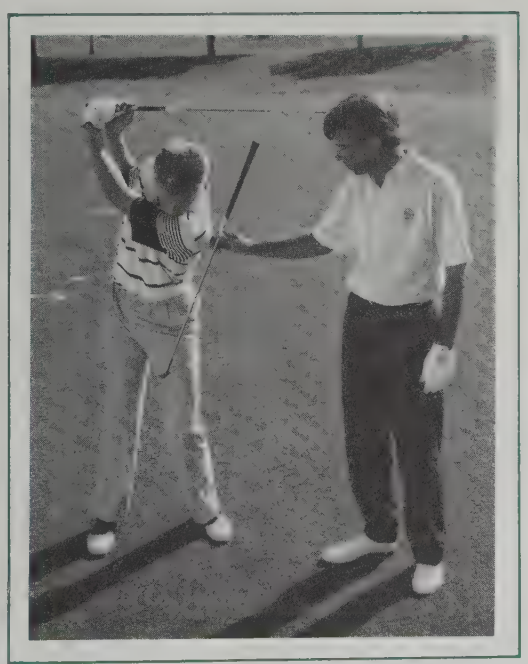
Tom Ecker

This strong rotation and moderate lateral movement coupled with a more level upper body allows the arc of the clubhead to more closely approach the target line and stay on it slightly longer. But many golfers who aren't on Tour have hips that barely turn and knees that flex only on demand; for them a more classic style may be the solution. *Club players with average or less-than-average talent may be served better by instruction that does not follow the style the Tour player is employing.*

The Importance of the Legs

There is some confusion about what the legs can and can't do in the golf swing. For example, you may have heard and read of fine players who attribute their length off the tee primarily to their legs. They may feel this, but it's a misconception of the extent to which the legs can actually deliver power to the club and subsequently to the ball. Let's repeat, "The legs in the golf swing are primarily the platform for balancing the trunk and swinging the arms." True, without the stability of the right foot and leg anchoring the swing, the power which comes from the motion of the arms, the turning of the powerful hips and trunk and the ability of the wrists to hinge and release would be greatly diminished. With a solid base these four elements normally make up 70-80% of your power package. The momentum developed by the legs in the weight shift accounts for the other 20-30% of your distance, significant but not dominant.

f 7-1 The amount of lateral motion is one of the distinctions in preference. Some players have very little (more rotatary), others have a good deal (more lateral).



Illus 7-8
An upper body reverse weight shift will have the upper body angled toward the target. The major cause is "trying to keep the head down."

Illus 7-9
The upper body should either be straight (usually on the shorter shots) or angled away from the target (more on the longer shots).

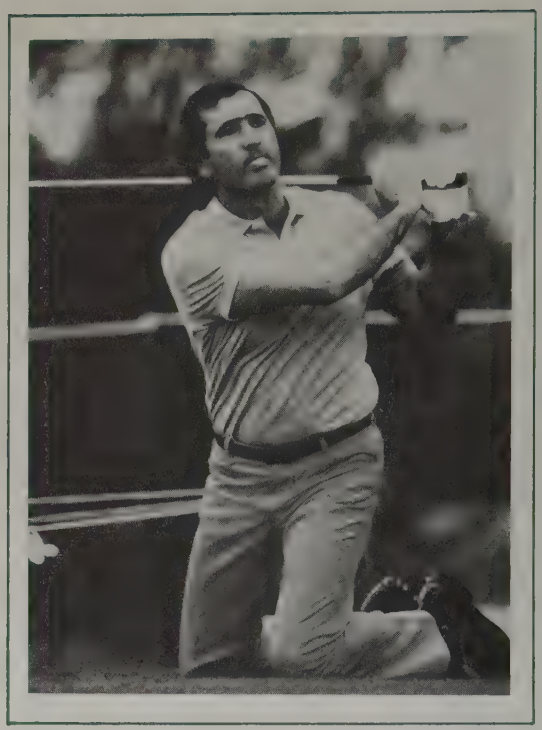
This conclusion may be hard for some to accept when they have heard so much about "leg drive for distance." However, its truth is easily demonstrated. Watch a trick shot performer hit balls while sitting on a chair or kneeling on the ground. (Illus 7-10) Any strong player, with practice, can do this and drive the ball 230-240 yards, compared to his normal tee shot of 260-270 yards. In the chair, the player uses the feet and legs only for support. Hitting off the knees (which is more difficult), requires the performer to rely entirely on a well-timed upper body and arm-swinging and trunk motion with a little help from the hips...but still no legs, yet 70 to 80 percent of his total distance is produced.

So, the majority of a golfer's power does not come from his legs. Establishing the desired position of the lower body from which to deliver that power does, however, require the legs. That's why so many teachers emphasize good footwork.

Which Influences Which?

Another misconception is that a good arm swing automatically produces good footwork. Not true. It helps, but it doesn't do it alone. The arm swing going away from the ball helps the player to transfer his weight to the right, and an arm swing through the ball assists in the finish. But the critical weight shift from over the right leg to over the left, is not purely a result of the arm swing. Getting the left heel down and transferring the weight of the lower body from the right leg to the left are necessary actions that produce a good forward swing weight shift. It's very similar to the weight transfer used in throwing a ball. The arm doesn't throw and the body follow. Instead, the body initiates, helping to propel the arm, which then pulls the body around to a finish. (Illus 7-11) In fact, they are best visualized as moving together, not exclusive of each other. (f 7-2)

A proper weight transfer can be learned if it's not natural. It is such a critical move in golf that, if necessary, players should specially practice it until mastered. For practice, the student could take a 7-iron and first rehearse the grip and set-up routine. (Gripping and establishing the set-up is like playing musical scales; even accomplished performers rehearse and repeat, repeat and rehearse.) Then, visualizing the target line, the student should waggle and swing, trying to feel that right combination of body actions for a good weight transfer both back and through. Most important is the move from the right foot to the left. Once the golfer's coiled body is poised over the right leg he is ready for golf's most critical action initiating the downswing or, better, "establishing the platform."



Illus 7-10
Seve Ballesteros can drive a ball over 240 yards while on his knees.
Photo by Stephen Szurlej

f 7-2 This move right to left is a critical part of good footwork. It not only puts the student into a powerful striking position, but also promotes a swing that travels on line to a centerface hit with the correct angle of approach.

Illus 7-11
The body initiates, the arms and club follow. But it should feel altogether, as one motion, so the levers are timed correctly.

Illus 7-12
Seymour Dunn was an innovative teacher from a famous family of golf professionals. Here he demonstrates the plane angles' degree of steepness.
from Golf Fundamentals

It's the same delivery used in the previously mentioned side-arm throw. The left heel is planted as the weight transfers to the left foot. There is rotation of the trunk and a dropping of the arms and hands into position for their important contribution. This reversal of weight from primarily over the right leg to settling over the left is the foundation of golf's footwork. It is initiated under and through the right foot and leg. Unless the lower portion of the right leg is solidly braced, the powerful movement to the left is flawed. Once this body attitude has been reached, the momentum of the swing itself will carry the player forward into a satisfactory finish position. A true swing will always create a full finish with the hands and arms over the left shoulder.

Swing Plane

The least understood and least appreciated of the golf swing's principles for many years has been swing plane. One aspect of it, the base line, indicates the direction of the swing path. The other, the tilt or steepness of the club shaft during the swing, determines the angle of approach.

The angle of approach aspect of this plane is easy to recognize. Does the swing tend to be flat like a merry-go-round or more upright like a ferris wheel? Either can produce accurate shots albeit with different trajectories: flat for lower, upright for higher. Until recently, golfers hadn't talked much about swing plane. If they did, it was usually relegated to arguing the merits between the two swing positions, upright or flat. The second but more critical aspect of swing plane is the line on which the clubhead is traveling. *Downswing plane controls the clubhead path;* the clubhead path is half of direction; and direction is half the game.

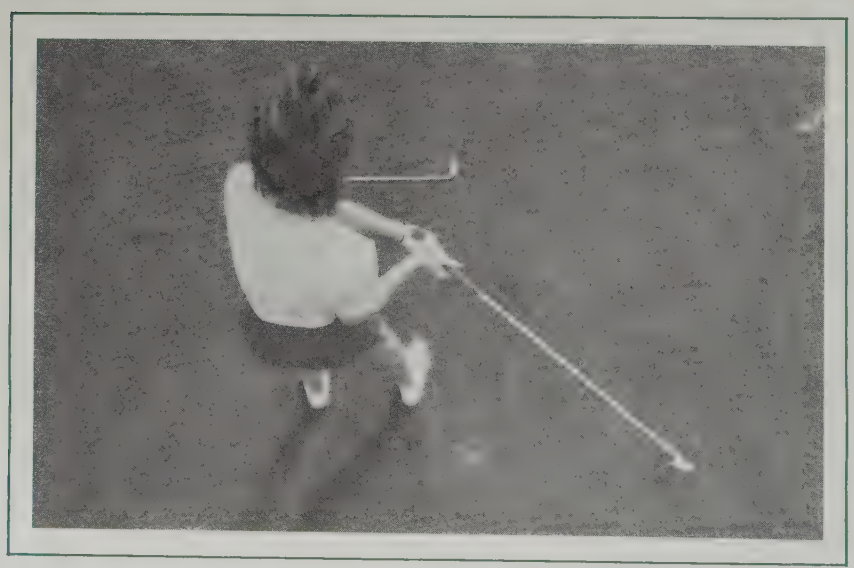
Recognition should be given to Seymour Dunn whose photos of the swing plane, as published in *Golf Fundamentals* (1922), still serve as a model that other writers of golf books could follow. (Illus 7-12) Recently, PGA professional Hank Haney has created additional interest in the importance of the swing plane. According to Haney, an advocate of Ben Hogan's *Five Fundamentals,* you swing parallel to an imaginary sheet of glass on the backswing and under it on the forward swing. This visual description stuck with thousands of golfers, who saw illustrations of this plane in Hogan's book. There are many great players, however, whose forward swing shaft plane is *slightly* over their backswing shaft plane. This is usually because the takeaway was inside (Snead, Palmer, Leitzke, Lyle). *The important point is that literally all fine swings approach the ball from the inside in the impact area whether over or under the backswing plane.*

Dunn, Hogan and now Haney have made it clear that in the forward swing the directional plane dictates the path. It does for this simple reason. In a golf swing, the head of the club will always follow the line on which the club's butt end is pointing and will intersect the baseline halfway into the forward swing. (Illus 7-13)

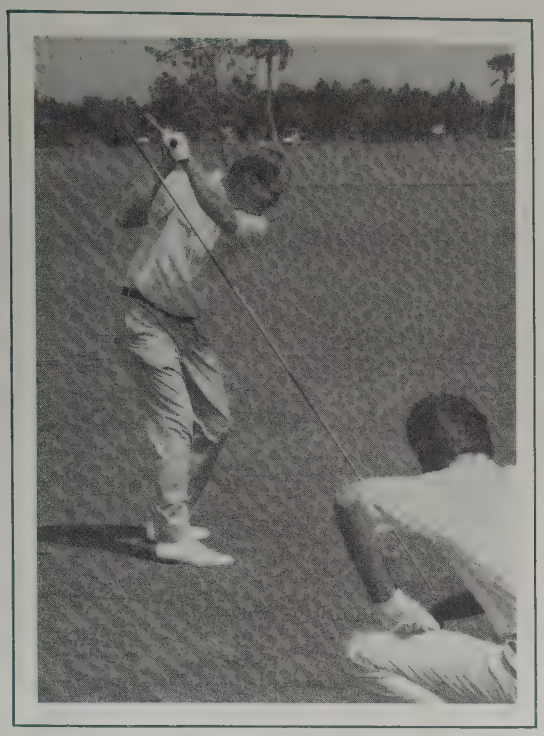
For examples let's look down from a position above the golfer. The player pictured in Illus 7-14 is in the most common improper forward swing position. Halfway through the swing, the player has incorrectly used the hands and arms, causing the butt end of the club to point to the left of the target — the eventual direction the swing path will take. In Illus 7-15 the player is overusing "knee drive," thereby dropping the club to the inside so that the butt end points well to right of the target. This is where the clubhead will follow. Remember, THE CLUBHEAD WILL ALWAYS FOLLOW THE BUTT END. As the club reaches a position horizontal with the ground, an extension from the butt end should point through the ball and extend toward the target. If it stays in plane it will point back along that same line well into the follow-through.

Illus 7-13
Here Dunn demonstrates how the butt of the club points to the plane's baseline.
from Golf Fundamentals

Illus 7-14
Example 1: The butt of the club is pointing left of the target in the downswing and the clubhead follows.



Illus 7-15
Example 2: The butt of the club is pointing to the right of the target in the downswing and the clubhead follows.



Illus 7-16
The right elbow is at right angles to the desired swing plane helping to set the club "on plane."

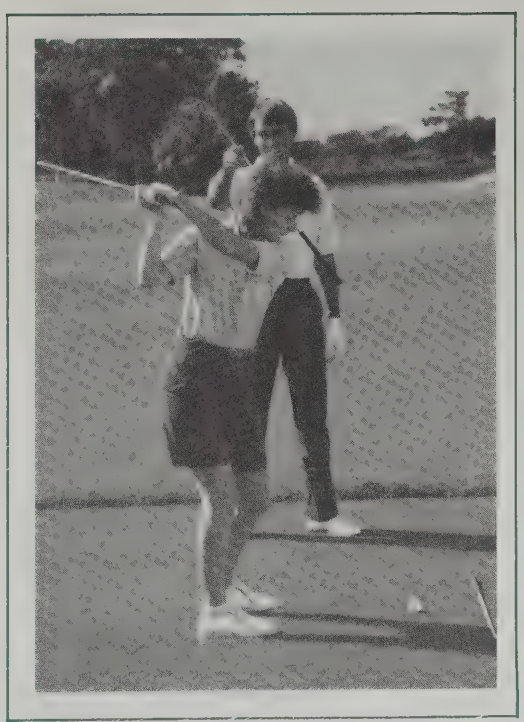
This may help explain the line of travel of the clubhead along the plane, but what about the inclination or tilt? The greatest players of all time have had swing planes that have ranged from very flat — Hogan, Player, Trevino — to rather upright — Nicklaus, Weiskopf, Watson. There are some tradeoffs which may help a player gravitate toward one preference or the other.

The flatter swing may have a better chance of staying "connected" than one in which the arms try to reach high in the backswing. Staying "connected" makes it easier to time the swing. A more upright swing however, wanders less from the aim line, and if timed correctly allows a good chance to hit the ball straight.

Swing plane influences the angle of approach and therefore, trajectory. A flatter plane results in the ball coming off the clubface on a lower trajectory, with a tendency to draw. This can be an advantage in wind but a liability on courses which favor longer tee shot carries and soft landing iron shots.

The plane of the swing is influenced by the angle of the right forearm as is seen in Illus 7-16. Note how the forearm position influences the plane in Illus 7-17, 7-18. Both at the top of the swing and midway through the downswing, the positioning of the right forearm will largely dictate the shaft plane. This angle can vary dramatically from the backswing to the forward swing. In many players' forward swings, the pattern seen is a slight flattening of the clubshaft plane as the motion begins toward the target. This occurs even though the plane line of the hands may be slightly outside and steeper than that of the backswing.

Illus 7-17
Note how the elevated right elbow has forced the club shaft to point right of the target line, "across the line," encouraging an inside approach path.



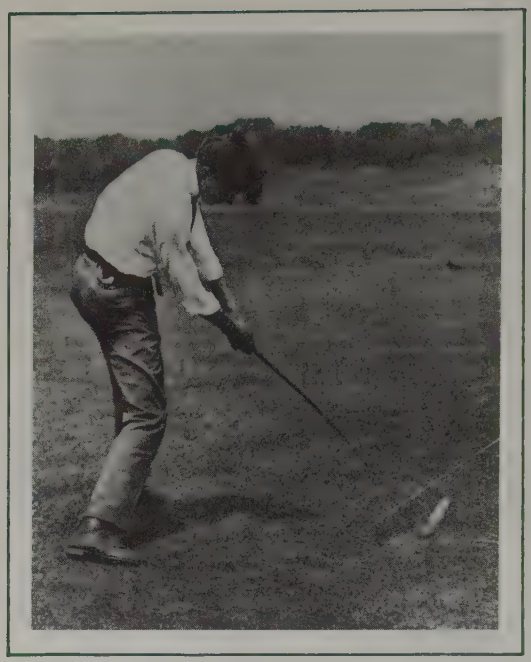
Illus 7-18
With the right elbow down the club points left of the target, "layed off," encouraging an outside approach path.

A Bonus — Distance

Only the effects of plane on *Direction* have been mentioned to this point. The bonus is that if the player can get his swing plane geometrically correct, he'll not only be on the correct line for direction, but on a line which produces the best leverage, the power channel which produces the strongest hits.

If there is any one position in golf that could qualify for adjectives like "secret," "magic" or "keystone," it is the one pictured in Illus 7-19. This position produces both accuracy and power. It is common to both hand players and body players, swingers and strikers, flat planes and upright planes, — it's an on-plane forward swing with the power being delivered at the proper moment.

That power package has some elements common to other sports. Like a catapult, there is a sling-like action which can unleash great power when the right elbow leads the hand. Think of a football passer, baseball pitcher, or javelin thrower. The power is contained as long as the elbow leads, but when the hand passes the elbow, the power is unleashed. The key in creating this position is to get the club shaft "on-plane."



Illus 7-19
The first PGA champion, Jim Barnes (1916), demonstrates the principle of delivering a swing down the "line of compression," both powerfully and accurately.

Lever System

Mechanically, the body can be looked upon as a series of levers which contribute to the swinging of a golf club. These levers, when connected to one another, constitute a linkage system. The leverage from this system is multiplied progressively as the rotational acceleration of the trunk, transfer of weight and swinging of the arms affects each link (body part) until the club is thrown centrifugally outward.

When a golfer addresses the ball with the club and left arm in a straight line from shoulder to the clubhead, a single lever has been created. A swing made from this position without cocking the wrists might hit the ball straight, but certainly not far. (Illus 7-20) However, by cocking the wrists so the club shaft is positioned at approximately 90 degrees to the left arm, the player has created a second lever and immediately can substantially increase the potential force. This reflects the importance of a *second* lever. (Illus 7-21)

We've all seen novice players with stiff-looking backswings who seem afraid to cock or hinge the wrist for fear of losing control of the club. In the forward swing they appear to be shoving the club at the ball. The result is that they hit tee shots with so little force it appears that their drivers have cashmere inserts. This could be eliminated immediately by cocking the wrists and creating a second lever, the club.

A third lever in this arm-hand-club link combination could be added by not only cocking the left wrist (thumb in plane with the forearm) but also in "dorsiflexing" or cupping the left wrist (back of hand toward forearm), or by bending the left arm at the elbow in the backswing. (Illus 7-22) Both moves have some potential for greater

f 7-3 They may not be counterproductive if the player who desperately needs more distance is extremely inflexible, with little ability to turn the trunk and shoulders.

distance, but tend to cause such additional problems in timing and consistency that the result is usually counterproductive. (f 7-3)

If a player wants distance, it is not a question of whether or not he prefers to cock the wrists…he must. But when, in the swing, should he cock them? That's not quite as clear cut.

Illus 7-20
With the wrists hardly cocked, this could be classified as a one-lever swing, with much less power available.

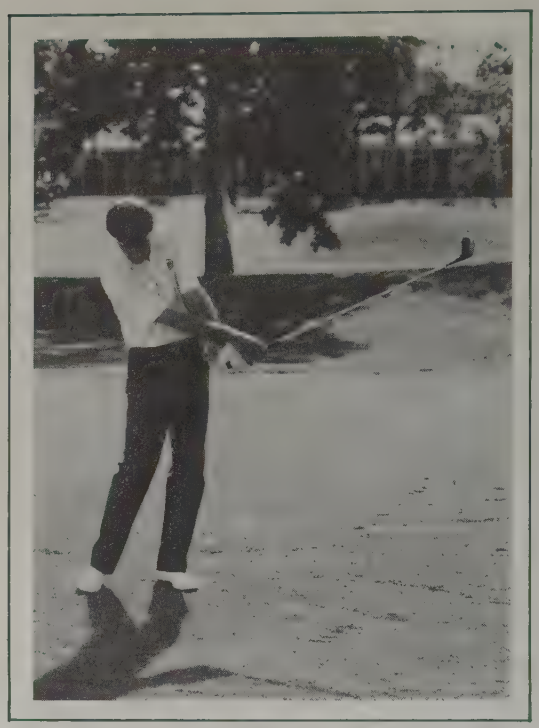
Illus 7-21
A two-lever position; simple, yet potentially powerful.

Illus 7-22
A three-lever swing; more difficult to time and to locate the ball.

When to Cock the Wrists

At the turn of the 20th century, the great players of the world first started their right hip and arms away in the backswing, letting the hands and clubhead follow as though they were being dragged. The clubhead would catch up and pass the hands in a reflexive fashion, cocking the wrists in the process. In the 1930s and 1940s the "one piece takeaway" became the vogue and players started to cock their wrists in the backswing somewhere between their right leg and right hip, until they were fully cocked when they reached the top of the backswing. In the last two decades we've seen players like Jack Nicklaus and Miller Barber who wait almost to hip height before cocking their wrists. It does encourage a wide arc, but can result in an occasional "rebound" of the hands from this late cocking at the top, causing timing of the impact to be more difficult for the average player. More recently, a trend is to have the club nearly pointing vertically by the time the left arm is horizontal, as in the style of Seve Ballesteros. (Players with a low hand position at address, like Ballesteros, essentially have their wrists partially cocked already.)

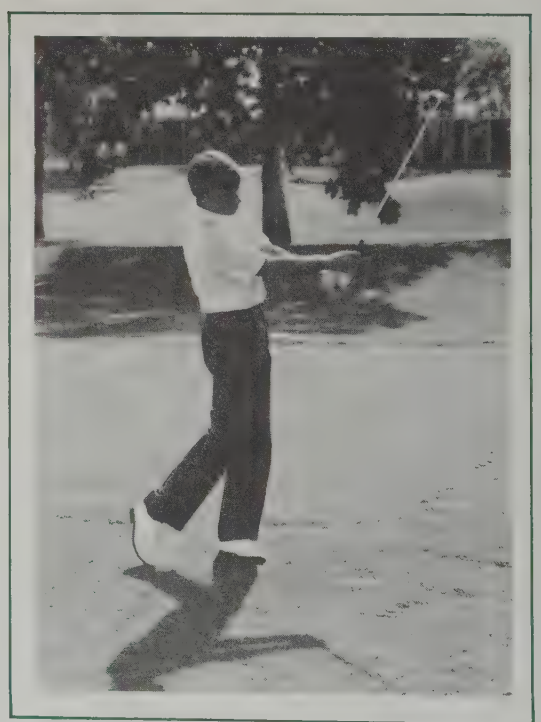
Some players also complete the wrist cock after the forward swing has already begun. Ben Hogan was perhaps the best example in this category. This move, the further cocking of the wrists on the forward swing, by the way, is characteristic of most long-hitting players. A possible viable option for the future is the pre-set. In this style the wrists are cocked before the backswing is in motion, a precocking method. The player and teacher must select a preference. If based on today's popularity, it would be a combination of "one piece" with a little "early set" action blended in.



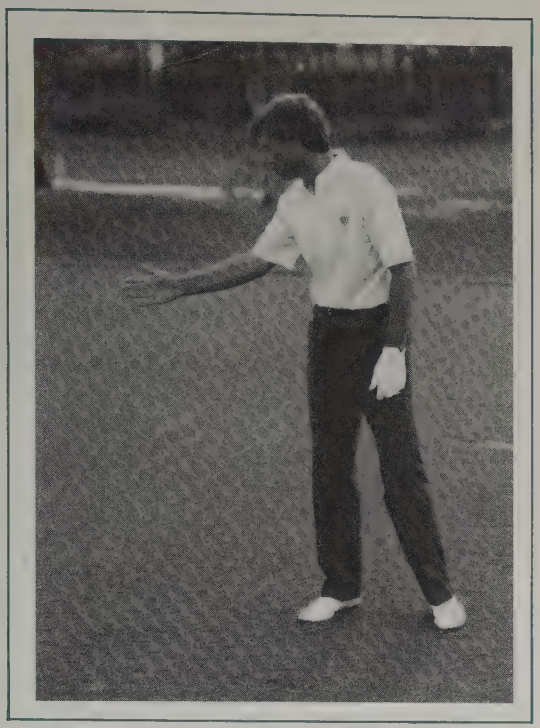
Illus 7-23
A release emphasizing hands while the body stays back. This would encourage a hook.

The Release

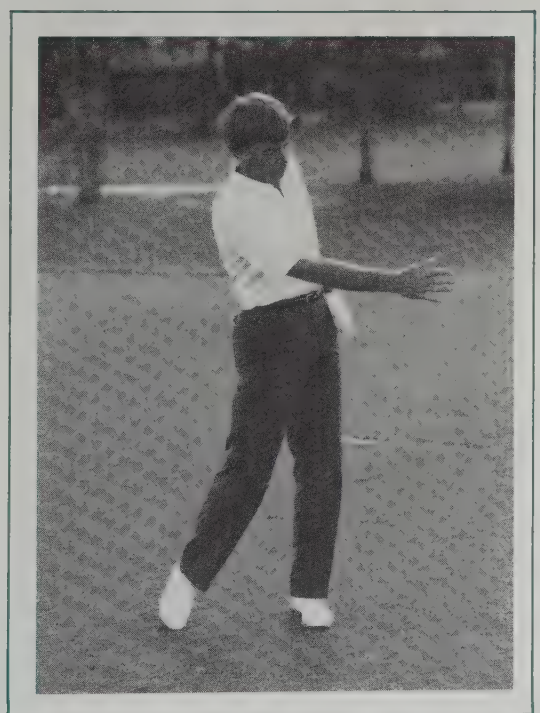
The term "release" sometimes creates controversy among teachers. There are those who don't believe such a word should exist in describing the golf swing. Let's call it a difference in semantics. The release may be described as the returning of the arms and clubhead and body to the position similar to that in which they were at address. Not the same position, but similar. This return allows expenditure of the energy potentially created in the backswing, i.e., "releasing it." The release comes from a rotational/lateral return of the body, unhinging of the wrists and a natural return rotation of the forearms. In the backswing the trunk has been turned, the wrists have been cocked and the left forearm rolled. This is where most of the controversy arises, in the concept of forearm rotation. Some professionals talk about the position of the forearms *relative* to the upper trunk, during the swing. Of course, the forearms turn but so does the trunk. In other words, in the approach the forearms maintain the same basic relationship to the trunk in a good part of the backswing and follow-through as they did in the address. (Illus 7-23, 7-24) Teaching professional Jim Ballard describes this concept by using the analogy of carrying a sack of flour in front of you with your palms facing upward, then turning and returning the body as



Illus 7-24
A release emphasizing more use of the body so the hands and arms remain in a position relative to that at address.



Illus 7-25
Demonstrating the position of the clubface by using a "shake hands"...



Illus 7-26
...to "shake hands" position.

though to toss it. This type arm movement is a part of his "connection" theory that the arms and upper body maintain the same position relative to what they were at address.

The other way to look at the idea of release is to look at the impact position as a constant, with the forearms and hands close to right angles to the target line at address and the body parallel to that line. The hands and forearms are not at right angles to that line in the backswing or through swing, but have rotated roughly 180 degrees from halfway into the backswing to halfway into the forward swing. The body has turned roughly 45° to 90° away from the target line depending on what part is being observed and what player is doing the turning. It rotates similarly in conjunction with the arms and hands into the through swing. These actions of body, forearms and hands in the through swing are labeled a "release" in this text.

The terms one uses to describe the proper positions are not so important. It's getting to the positions that counts. A simple illustration like, "shake hands to the right," "shake hands to the left," using the right hand might do the job, in describing release. (Illus 7-25, 7-26) Whatever your semantic viewpoint, when you make a proper swing from the "shake hands" position on your downswing and continue to impact position, the left forearm returns 90 degrees to its original position, and the left wrist unhinges. Some teachers consider this a natural move, some teach conscious left forearm rotation, some teach "connection," and others a right-hand hit to make it happen. *Whether the right hand impels it, follows it, or supports it is a matter of preference. In the experience of many professionals it is natural for some pupils but must be taught to others. As long as the geometry is correct, the ball doesn't care.*

Failure to Release

One of the most common errors related to release is lack of it. "Blocking a shot out" — leaving it to the right for a right-handed player because of the failure to square the clubface — is one problem that can be solved by having a better release. "Blocking" is the basis of the slice for many golfers, and results in compensations such as a bad grip and a worse swing path. Two common causes of the "block out" are: 1) tightness in the forearms which destroys the freedom to let the arms, hands and clubhead "go" or rotate along with the body. Blocking stems from trying to hit hard and squeezing the grip "too tightly." Firmness in the grip is desirable but tightness is destructive since it inhibits release. And, 2) moving the swing center ahead of the ball so that the arms, hands and clubhead cannot square up or release in time is another common cause of "blocking a shot out."

Timing

Whatever number of levers is used and however the player employs a release, the swing has to be timed correctly. An accurate description is PGA Professional Paul Bertholy's PSM (Proper Sequential Motion), when all of the elements of the swing are assembled in their correct order. PSM is experienced when a golfer hits an extremely solid shot that goes farther than expected, yet the execution seems effortless. That's when the linkage system is operating most efficiently — good levers, good release, good timing.

Remember taking a group of dominoes and standing them up so that when one fell, it knocked the rest over, one by one? When setting them up, the sequence of placement was not critical as long as they finally were in place. But in knocking them down they had to fire in sequence. So it is with the golf swing. Firing in sequence causes efficiency in movement.

If we take the force of the swing to its source we'll find that once a player has loaded the gun — that is, when he's reached the top of a fully wound backswing — there is a series of sequential movements like a domino chain that produces a power-efficient swing. The feet and knees lead by transferring weight, followed by the hips and the lower trunk, then the back and shoulders, and finally the arms and hands. Yet the feeling is that "it is all together." By timing the sequence in this fashion, there is a summation of forces with each part contributing some share. When the body parts fire in precisely the right order and right amount, the best swing is produced. Paraphrasing the great Bobby Jones, there will be changes in swing style over the years, but there will never be a change in the sequence of movements in the forward swing.

The backswing can be 1-2-3-4-5 or some other combination but it should be followed by a reverse 5-4-3-2-1 forward swing to be correct. If on the return the sequencing is 5-4-1-2-3, the linkage system is not being used correctly. Timing is lost, a good deal of the force, and possibly the ball.

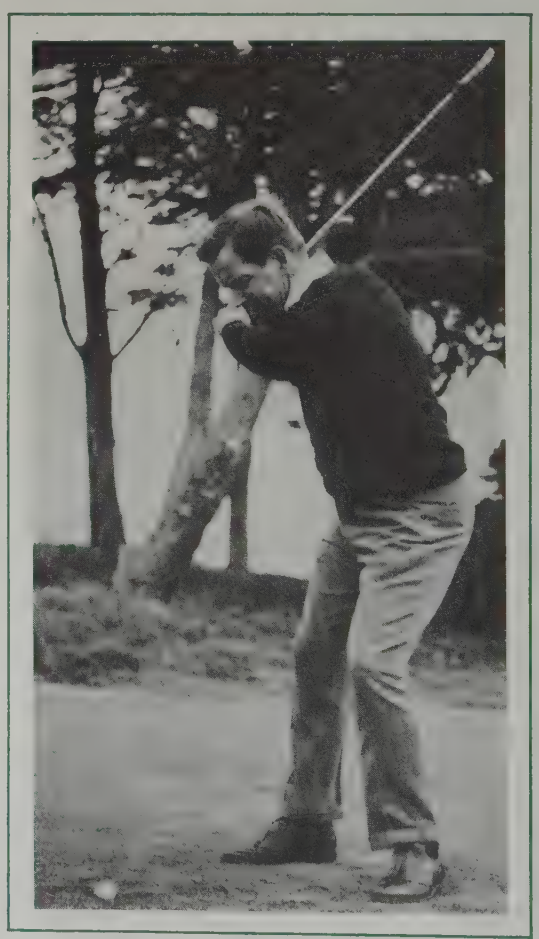
"Boy, my timing was sure off today," is the comment one frequently hears from golfers. Or, "Just didn't have any rhythm." Or, "I lost my tempo." Though they are probably referring to timing, these three — rhythm, timing, and tempo — are not the same. To set the record straight and avoid confusion of these terms, *rhythm* in the movement arts means *a harmonious flow resulting from the proper relation of parts.* A rhythmical swing "looks good." It may not be as productive, however, as one of lesser beauty. *Timing* is the sequence of movements. *Tempo is the rate of the movement* — fast or slow — but has nothing to do with the sequence. You could have a fast tempo like Lanny Wadkins, but be in perfect sequence. His swing may have perfect timing, but would not generally be considered rhythmical. Good rhythm and tempo are desirable, but *timing is critical. It is the most important!*

Finding a Workable Tempo to Improve Timing

"As ye shall waggle, so shall ye swing," is one of the oldest sayings in golf. It means that people with quick waggles will tend to have quick swings, and vice versa. A person's tempo, whether it be in the waggle or swing, will generally relate to his nature. Some people are

"There is no one right speed for everyone... if I tried to play at his (Tom Watson's) breakneck speed...I'd self-destruct before I finished the front nine."

Nancy Lopez



Illus 7-27
Good position at the top allows Gene Littler to...

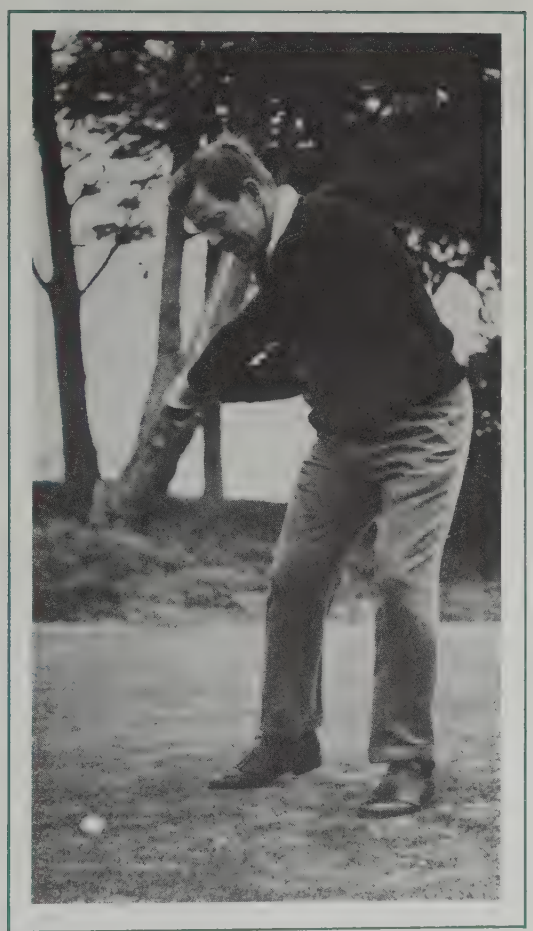
Photo by Chuck Brenkus

more tightly strung and do everything quickly. Others are phlegmatic, and fast moves are foreign to their nature. A player's swing should match his nature — within reason. A fast backswing and quick change of direction can present considerable problems in timing. Otherwise, the hustler's saying, "Just find me a guy with a fat wallet and a fast backswing and I can have a very enjoyable day," would never have gained credence. On the other hand, a swing that is too slow may never get up enough steam to produce effective clubhead speed. Or, if it is a very deliberate backswing, the player may rush the change of direction in an effort to generate speed. This rapid change of tempo can lead to inconsistency. A good image would seem to be somewhere between the tempo of Lanny Wadkins and that of Gene Littler. If your student can make it a habit when his timing is off to picture a rhythmical swing like Payne Stewart's or Larry Mize's, and then apply his own natural tempo, he'll stand a good chance of achieving a swing that is also well-timed.

"When through practice, you have grooved a good position at the top; practically all you'll have left to do to perfect your swing is to get your timing right."

Anon

Position and The Slot



Illus 7-28
...get the club "in the slot."
Photo by Chuck Brenkus

Another principle influencing direction, is the *position* of the arms, hands and club at the top of the swing. (Illus 7-27) In particular, the term *position* in this model refers to the relationship of the back of the left hand and forearm. At the wrist joint is the *position* flat, cupped or arched? It is possible to play first rate golf from any of the three positions. At the 19th hole or in the locker room, one may hear better players talk about how they couldn't get it "in the slot." The "slot" is the position the hands and arms "drop into" just after the body's forward motion begins. It's the "transition" period of the swing. (Illus 7-28) It is most easily found when, at the top of the swing, the player has the club, his hands and left wrist in such a location that he can simply return to the ball without manipulation and produce an on-line, center-faced, square-bladed hit. "In-the-slot" for the Tour performer most often finds the back of the left hand, the forearm and clubface being in a single plane. A flat left wrist position is what the player is seeking at impact. One of the worst golfing faults influencing the face position of the club is a breaking down of the left wrist in the impact position. If the wrist is flat at the *top* it has a better chance of returning that way at *impact.*

The ball-hitting machine mentioned and pictured earlier in Chapter 3 has swing characteristics that fit the Laws, Principles and Preferences model to a "T." The club has to be gripped, even though it's a clamp-like device. The machine must be set up and aimed correctly. It needs arc, length and width to produce distance. It swings in-plane for direction. The plane is a single plane since there is a single fixed axis, whereas the human golfer uses both left and right legs as axes for the lower body movement causing a change in planes. Balance, footwork and a steady center are not problems because the machine is bolted to concrete. Its linkage system, consisting of a well-timed, two-lever, properly released swing is built into the mechanism to produce correct impact. But one of the greatest advantages it has over the human body is that the machine does not have a wrist. The

movement in that part of the machine is limited to an on-plane hinging action and 180 degree rotation like a person's forearms. This is produced by a sleeve-like device which keeps the face square to the tangent of the arc throughout the entire swing. The machine does not have a left wrist that will cup, arch or rotate out of plane. So, while humans have the luxury of a complex wrist joint for accomplishing infinite daily manual tasks, for swinging a golf club it would be simpler if the wrist only flexed laterally.

Arc Width

"The only purpose of the golf swing is to move the club through the ball square to the target at maximum speed. How this is done is of no significance at all, so long as the method enables it to be done repetitively."

John Jacobs

The path of the clubhead describes an arc during the swing that is basically circular with some flattening at the bottom. Both the length and width of that arc affect the distance a ball can be hit, or if it will be hit at all.

Arc width, like the radius of a circle, is measured from the rotational swing center to the end of the clubhead. If one measured clubhead velocity for a given swing and at the same time measured velocity of the club midway up the shaft, he'd see that the head is moving faster than the mid-shaft point because it has a greater distance to cover. Given an equal force, the velocity at the end of a lever will always be greater than any other point along that lever. Therefore, when a player shortens his lever lengths, potential clubhead speed is lost. The left arm may be bent in the backswing if the student is unable to maintain extension without tightness but the arm should return to a more extended position at impact.

Arc width not only influences speed but also is critical in centered clubface/ball contact. Imagine the hitting machine's performance if the lever arm swinging the club shortened by just two inches as it neared the ball. It would hit a bushel full of grounders. A human can compensate for shortening the leading lever arm (the left) by lowering his swing center. But the result is inconsistency, because it adds to the complexity of the swing. Also, the player experiences loss of distance even if the ball happens to be struck squarely, because it's hit with a shorter lever. An extended left arm at impact should be the result of centrifugal force pulling it into extension. This result is the release from a properly timed swing that is free from muscular tension. Trying to keep the arm straight produces unwanted tightness in the arms and shoulders.

One of the more natural techniques that has been employed by teachers to achieve extension at impact is to tell pupils that two forces in nature, gravity and centrifugal force, are working for them. If the pupil holds a club in the air, then releases it, it hits the ground...gravity. If the pupil swings the club with tension-free arms and hands, the club will try to pull out of his grip — centrifugal force — causing the arms to extend. With continuous repeating swings and the help of gravity, centrifugal force and a swing center that is not moving up until after the shot, the pupil will be able to locate "mother earth" and brush the grass with the clubhead. It's the natural consequence of extension or arc width.

Arc Length

Illus 7-29
Although players who are not as strong may need more arc length in the backswing to give them more time to build up speed, there is a point at which control is sacrificed and no distance is added. Here is Marlene Bauer early in her career. It is to her credit she played so well considering this position which has long since been corrected.

How far back and through should a player swing the club for a putt, pitch, short iron, driver? This distance is called the "arc length." The arc length will most often be tailored to the length of the shot: short shot = short swing, long shot = longer swing.

Too Long

There is a law of diminishing returns regarding the general formula of "longer swing produces longer shot." The standard most often used is when the club shaft is horizontal at the top of the swing, with a plus or minus five degrees, which includes most of the great players in the world. An overly long swing encourages inconsistent contact rather than longer drives. (Illus 7-29)

When seeing a full swing with a long club that markedly has passed parallel it is usually assumed correctly that in order to get there, either the left arm had to bend excessively, the swing center has moved too much, the left hand has let go (loosened grip), or the arms have lost effective connection with the body. Few players possess the flexibility to drop the club below parallel without resorting to one of these four technique flaws, all which tend to reduce consistency and control.

Too Short

On the contrary, when the swing with a long club becomes too short, the player cannot effectively incorporate the larger muscles of the back and trunk into the swing. (f 7-4) If power is desired it must come from somewhere else. The player will usually try to get the power from the arms, shoulders and hands which is potentially the cause of several additional problems. Most of these relate to hitting out of sequence with the right side causing the club to be cast outside the target line, pushing the right shoulder upward and forward, resulting in a premature loss of angular momentum (the "early hit"), a lack of weight shift and early breakdown of the left arm and wrist. All because of inadequate arc length. A swing that is too short tends to become a hit.

Ideally, the pupil is strong and flexible with fast neuromuscular response and can take a long club slightly short of parallel and still produce good distance. But most pupils aren't so blessed. Less physically strong and/or flexible players need a longer swing to allow additional time to build up speed. This is the swing that one sees more frequently on the LPGA Tour. In some pupils the backswing may need to drop lower than five degrees past parallel. The aggressive, shorter, faster change-of-direction-swing of Arnold Palmer is not the style this type of player should emulate. *Make arc length fit the needs of the pupil.*

f 7-4 Flexibility exercises like those demonstrated in Appendix 17-C can do wonders for this problem after a few months' work.

Swing Center

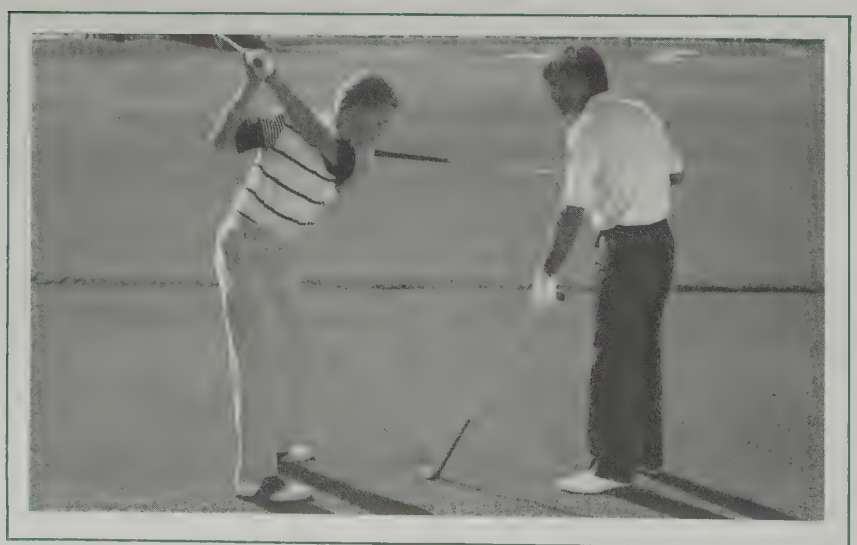
Swing Center in this model relates to the body's "center of rotation." It is the center of the swinging of the arms. The objective of the backswing on a full shot is to wind up (coil) the upper body and place the majority of the weight over the right leg. That windup is made around a swing center or "center of rotation" which, when controlled in its movement, adds to both balance and consistency. (f 7-5) The rotational "swing center" should not be considered an absolutely immovable and finite point. It is a reference point between the top of the sternum on the front of the body and the top of the spine on the back of the body. On short shots, such as a full wedge or short iron, the center would show either a small amount or no movement. On a drive it could move more noticeably to the right on the backswing, returning in the forward swing. The degree of centering depends on how much lateral movement the swing style employs. The swing center can move in combinations of six directions: left (toward the target), right (away from the target), down (toward the ball), up (away from the ball), forward (toward the target line), back (away from the target line). If the swing center has moved from a correct initial address position, it must return to the correct position at impact to consistently hit good shots.

f 7-5 ***The actual center of the swing arc varies between the center of the chest and the left armpit depending upon the ball's location.***

"If everybody could learn to hold his head still there wouldn't be any golfers around still trying to break 100." (Editor's note: apparently this was before Curtis Strange appeared on the Tour.)

Arnold Palmer

Illus 7-30
The swing center controls the angle of body tilt forward. From the base of the neck, or top of the spine, to the ball may be labeled the "suspension radius." Moving it markedly up or down during the swing causes contact problems.



Illus 7-31
Here it remains.

"Trial and experiment demonstrated to me that the necessary whirling motion of the club was produced only when the force activating the club had its origin in the center of the body."

Bobby Jones

If during the backswing the player moves his swing center forward toward the target (a reverse weight shift), then that center must move backward in the downswing to produce an effective result. Likewise, if the center goes up, it must come down; forward, it must move back. If it does not return to somewhere near its original location, some mechanical compensation must be made in the swing. For example, if the center moves down, the left arm may need to bend to accommodate the reduced length of the suspension radius. That radius is defined in the address position by the player's forward body tilt and distance from the ball. (Illus 7-30, 7-31, 7-32, 7-33) Maintaining the swing center relates not just to lateral body movement but also to any movement that disrupts the body's correct posture bend, or tilt, measured by the suspension radius. Maintaining the upper body's proper forward tilt for a particular club is one of the critical factors in consistency.

Illus 7-32
The swing center may lower slightly, but not raise at impact.

Illus 7-33
It releases after impact.

Impact —
The Moment of Truth

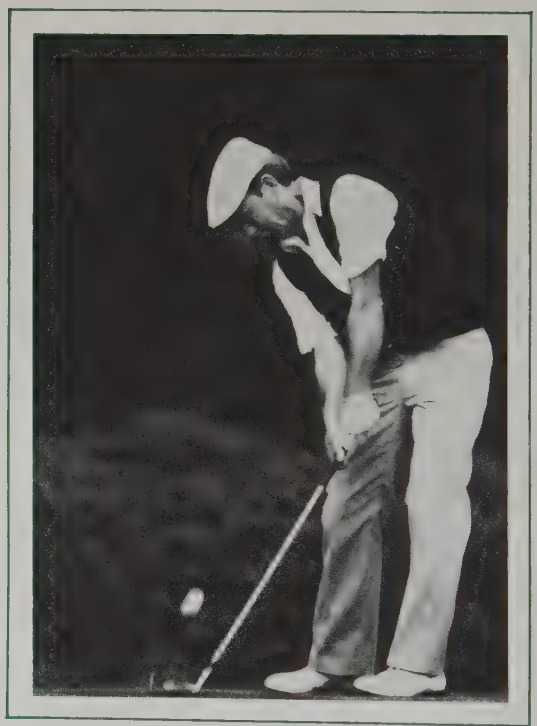
In many of life's endeavors, whether running a company, cooking a meal, or playing a musical instrument, there are different styles that work. This is also true in golf. There is a great variety in preferred swing mechanics as demonstrated by the game's best players. Some golfers prefer to overlap, others interlock, and a few use all fingers on the grip; good players can make a one-piece takeaway, cock their wrists quite early or very late; champions use flat, medium and upright swings. The player's choices represent his swing style and attempt to make all things "right" at impact. The outcome of these choices is the "moment of truth." All that leads up to or follows simply detracts from or contributes to that instant. ***The goal is to eliminate as many compensating moves as possible.***

Does the ball care that a player's right foot is still on the ground just prior to impact like Miller Barber's, or higher in the air like Raymond Floyd's? (Illus 7-34) Not really. It only responds to where the clubface is at *impact.* Certainly the position of the right foot can influence the clubface; but a golfer doesn't hit the ball with his right foot...he hits it with the clubface. Please understand the point! Those considerations can be important, and they do affect ball-clubface contact. The point is, know what's most important. The moment of impact is the *most* important. Get that right and the ball won't care how you did it. The end, in this case the ball's flight, justifies the means.

"I discovered that by keeping the back of my left hand toward my objective — from the time the clubhead entered the hitting area...until it had completed the early stages of the follow-through I naturally increased my accuracy"..."The full swing is the same with all clubs. I don't feel the iron swing is basically any different than the swing you use with a wood...you should not consciously try to make any modifications."

Byron Nelson

Illus 7-34
Raymond Floyd in excellent impact position although the right heel is fairly high in the air.



Illus 7-35
Classic characteristics of effective impact: 1) left arm extended, 2) flat left wrist, 3) weight on left, 4) right elbow pointing to pocket, 5) left arm and shaft in a straight line.

Photo by Stephen Szurlej

f 7-6 When the clubhead passes the line of your left arm, it is decelerating. That shouldn't happen until the transfer of energy at impact.

There are common positions exhibited repeatedly by world-class players in every impact picture: 1) left arm more extended than bent, 2) left wrist flat (not cupped), also arched slightly upward, 3) body weight favoring the left side, 4) right elbow pointing toward the right front trouser pocket, 5) left arm and clubshaft in a straight line, never with the clubhead ahead of the arms and hands. (Illus 7-35)

Teaching Impact

How does one teach this critical impact position? It may not be necessary. The student with the correct position at the top of the swing, a well-executed forward motion and a good finish may automatically produce correct impact. But if the player regularly collapses the left wrist and elbow, or blocks the release, consider this: Henry Cotton, five-time British Open champion, had his students hit a tire to strengthen their hands and provide the needed resistance that gives the proper feeling for the position of the left wrist at impact.

But a tire can produce too much shock and possible injury to the joints. What is needed is something softer. Students can use everything from pillows to old seat cushions until they literally knock the stuffing out of them. There is also a tough vinyl bag on the market that serves the purpose even better. It may look like something to sit on, but when a player strikes it, there is an instant kinesthetic revelation, the feeling of solid, square contact. Practice of this type can be particularly helpful for the golfer who has one of the following problems:

— Allowing the clubhead to pass the hands before impact. (f 7-6)

— Deceleration near the ball and producing "powder puff hits."

— Pulling the arms past the ball and leaving the face open.

— Letting the right elbow fly away from the right side on the forward swing, making the path of the clubhead approach the ball from outside the flight line.

Whether using a bag or something similar, heed two important suggestions: 1) Indicate the aim line by placing a club beneath the object to be struck. Swing from inside the line to develop the feeling of the right forearm and elbow on the correct path to the ball. The right forearm should be in plane with the shaft, and the right elbow is pointing toward the right front pocket. "Put your elbow in your pocket," was the phrase often used by one of our earlier great PGA professional teachers, Harry Pressler. This is the result of proper sequential motion between the upper and lower body. And, 2) after feeling the impact position against the bag, have the player step away and focus on swinging to a full finish with a feeling of reaching speed just past the ball. The drill with this bag can help ingrain correct impact position. But no drill should ever distract the player from making a full swing *through* the ball.

Whether drills to work on, tips to try, devices to employ, or fundamentals to adhere to, the ultimate objective is still the same — to be right at the one moment that counts — IMPACT!

Connection

Connection, as a term describing the body's movements in the swing happening in their correct sequence, has been quietly around golf instruction since the early 1900s. But the term has been expanded upon and popularized more recently by teaching professional Jimmy Ballard.

In this model the term "connection" does not include the entire "seven common denominators" from the Ballard system. What it does refer to is proper positioning of body parts both before and during the swing. If a player in his set-up has over-extended his reach to the ball he is partially disconnecting his arms from the more powerful producer of power, the trunk. If during the backswing the arms and club are moved outside the target line in a lifting action they are partially "disconnecting." If in the forward swing the body stops turning toward the target prematurely and the arms and hands are impelled forward they are doing so without maintaining their connection.

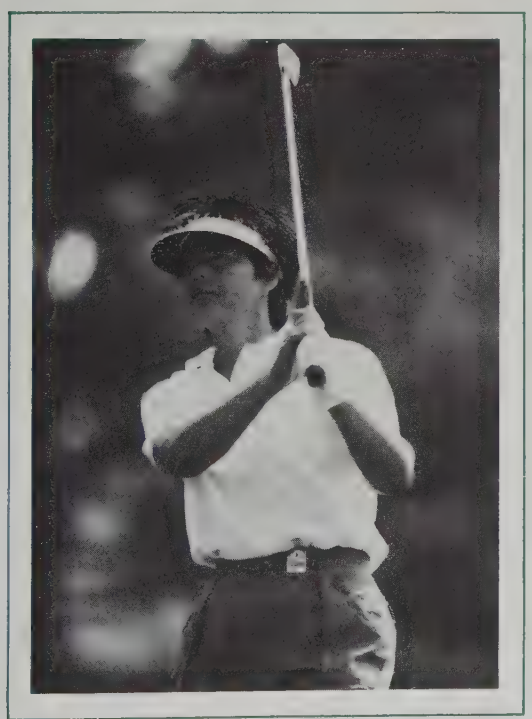
Some of the uses of the term "connection" in this text could be interchangable with "timing" and "set-up." But connection communicates well and works better in many specific situations to describe what is or isn't happening. In teaching connection the following comments may be useful:

1. Connection should begin at address.
2. The triangle between the shoulders and arms stays relative to the rotational swing center (upper chest).
3. Sequence and position can be maintained by keeping the elbows in relatively the same relationship they were to one another at address.
4. The body is as much a part of release as the hands and arms if the swing is to stay connected.
5. Connection can apply successfully to the short game as well as the full swing.

f 7-7 *The book* Swing Dynamics *by PGA member Winston Howe and co-author Will Lampley, is an excellent technical book on the details of the golf swing. It is beautifully illustrated as well.*

"It is wrong for a person to think power comes primarily from strong hands and strong arms. It absolutely does not! Power in the golf shot comes from body action... The function of the hands is simply to square the face, not provide the power."

Anon



Illus 7-36
PGA Tour star Ayako Okamoto has a swing that is mechanically efficient and aesthetically appealing.

Photo by Dom Furore

Two Additional Useful Words

Two words the teacher may find useful on the lesson tee or in the classroom are *transition* and *rotation. Transition* describes the change in the direction of the swing from the backswing to the forward swing. It may well be the most critical move in golf. The reason its not listed as a principle is because it can be incorporated within the terms timing, connection, plane and dynamic balance. But using "transition" to describe that one particular moment in the swing may help the teacher better communicate to the student.

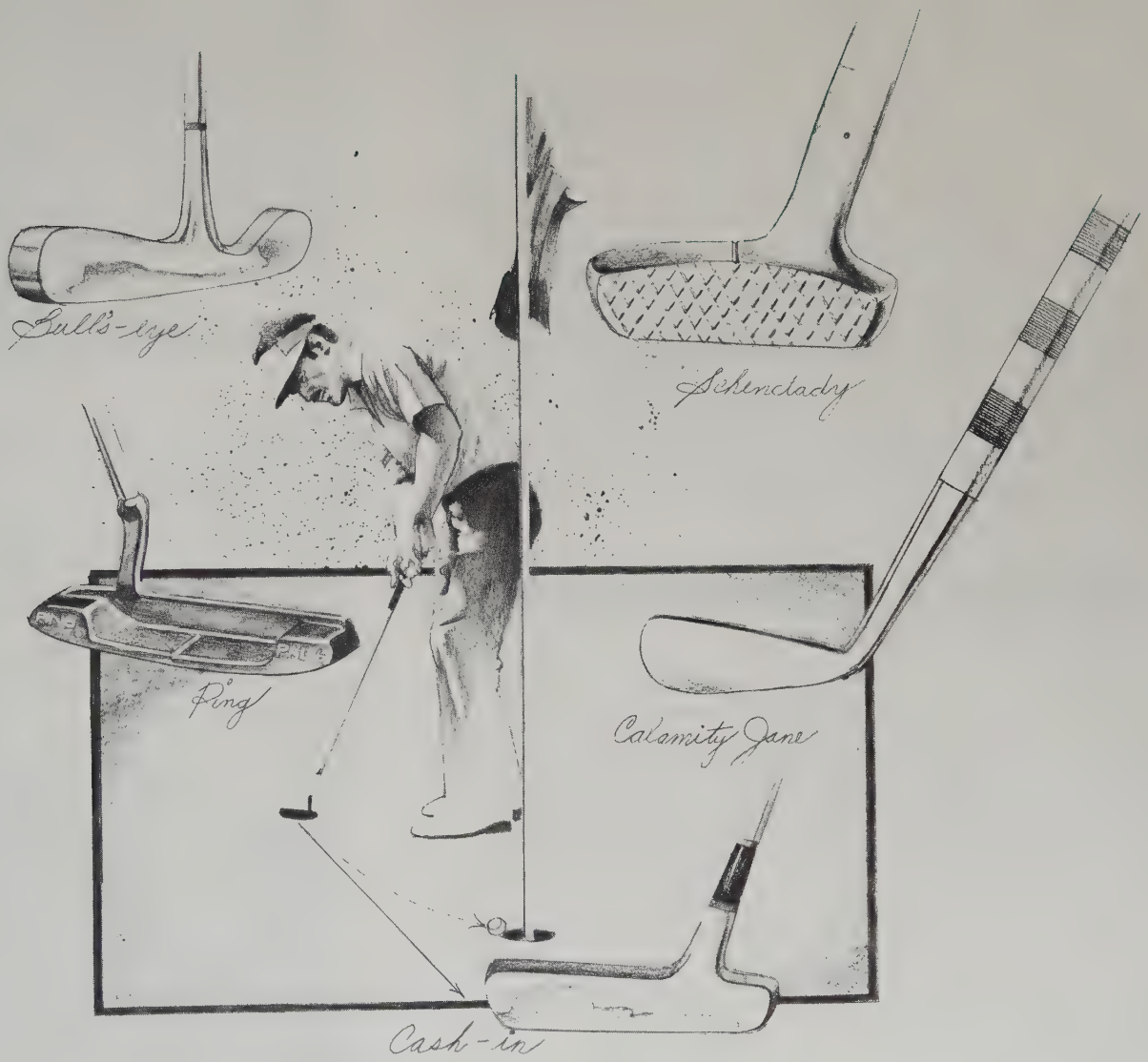
Rotation is the primary motion to develop power in golf. Like a Mazda's Wankel engine, the golf swing relies on rotary power. There is also power from lateral motion and it is necessary but it does not provide anywhere near the force that comes from making a pivot, winding and unwinding the body. This coiling move incorporates the large muscles of the hips, back and trunk, some of the strongest in the body. Rotary movement is also useful in helping to minimize the vertical lifting of the player's center of gravity. In addition there is rotation of the forearms and hands which must square the face but also can provide power. This hand and forearm rotation may be either a natural free-wheeling motion or a more conscious leverage thrusting action. The term "rotation" is incorporated into dynamic balance, arc length, arc width, connection and release. *Transition* and *rotation* may be candidates for added principles to the next teaching model. (f 7-7)

So What's Important?

So what's important? Is it better to have a "good-looking swing" or a swing that produces "good-looking results?" Generally, they go together. A golf swing that is correct in *Principle,* one that effectively solves the problems of Distance and Direction through the five Ball Flight *Laws,* will employ *Preferences* that are most often pleasing to the eye. (Illus 7-36) But it's important also to convey the following message to the student, "The ball doesn't care how you do it; it only responds to whether or not you did." (See Appendix 7-A for additional valuable material.)

CHAPTER 8

Putting



CHAPTER 8

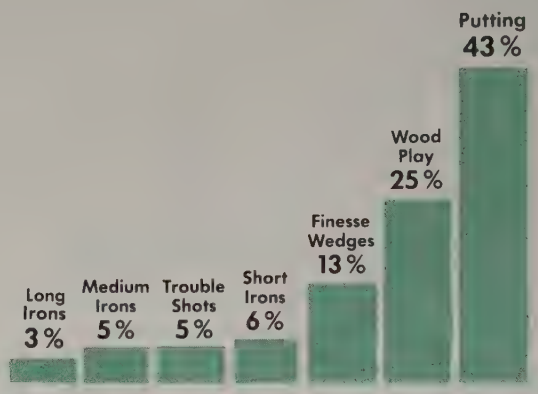
Putting

Harry Vardon once called putting, "The game within a game," acknowledging the fact that it is a skill unto itself utilizing specialized techniques and talents, some of which are quite apart from those required for the rest of golf. This miniature part of golf which brings a conclusion to every hole has been castigated by some, "Golf would be a great game if it weren't for putting," and praised by others, "Putting is the great equalizer in a game that otherwise would be dominated by the strong and the mechanical." (Illus 8-1)

"The best way to putt is the way you putt best."

Old Adage

Percy Boomer, *On Learning Golf (1961),* has put a different twist on the opening quote saying, "Putting is *not* a game within a game, it is the game." His view was that the putting stroke is still a swing of the club as in all other shots, but a smaller swing. Certainly the players who claim to have "played great, but putted badly" delude themselves about the nature of the game. Putting *is* a vital part of the score and therefore, most certainly, part of the game. If you don't putt well you don't play well — period! Yet, of the hundreds of thousands of golf lessons given worldwide in the past year, how many were on putting? There are no statistics, but anyone close to the game knows that the percentage is ridiculously low considering the importance of putting to scoring. Is it because the student shows little interest in putting? Is putting instruction not promoted by the professional? Does putting seem so simple that lessons are considered unnecessary? It may be these factors as well as others but, whatever the reasons, golfers need to be encouraged to spend a greater percentage of practice time on their putting than they do. It is the fastest way to improve one's score. (Information on how well you should putt is included in Appendix 8-A.)

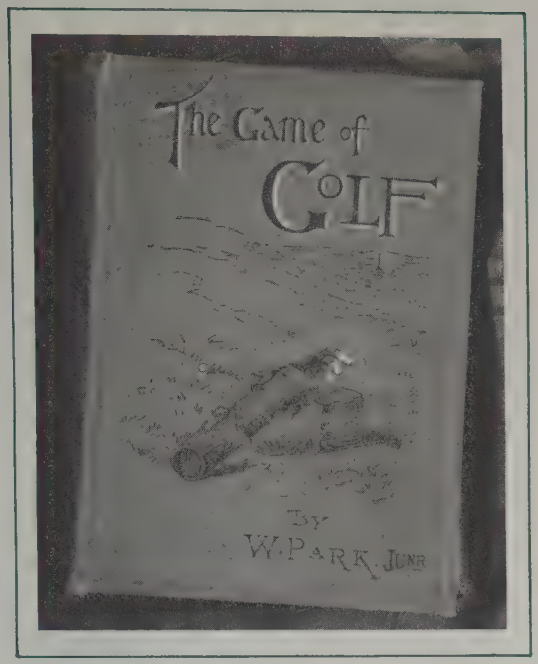


Illus 8-1
Putting consumes some 43% of the strokes for the better player, thereby serving as a "great equalizer" between the power hitter and the finesse player.

Historical

During the early 1800s, successful putting left as much to chance as to skill due to the condition of the greens. This becomes obvious when one reviews the rules then in effect. They stated that a player *must* tee off *no more than* one club length from the cup. After completing play of a hole the caddy or competitor would reach into the bottom of the hole (there were no liners or "tins" at the time), scoop out enough sand on which to place or "tee" the ball, then "play away" — right from the green! (Illus 8-2) The rule was later altered extending the distance to two club lengths. Finally, around 1875, a separate tee ground was created, leaving the greens exclusively for putting. Imagine the condition of the greens when they served this dual role! As British golf writer Peter Dobereiner so aptly put it, "Putting then must have been more like chipping the ball in a bunker." This appears to be a reasonably accurate description because the greens were maintained not only as nature made them but as nature kept them. Today, we expect verticutting, top-dressing, aerifying, watering, plus a lot of other *"ings"* including a 3/16 inch cutting. As we create improved putting surfaces, "good putting" increasingly becomes science, practice, and skill rather than luck.

Illus 8-2
Prior to the invention of the peg tee, a player had to get the sand from the bottom of the cup and then tee off one club length away, right from the green, leaving it in a rough condition.



Illus 8-3
Willie Park's book describing his putting and playing style.

Illus 8-4
Walter Hagen, one of the game's great putters, demonstrating his style.

The first famous practitioner of putting was Willie Park Jr., twice British Open Champion and the first professional to write a golf book, *The Game of Golf (1893)*. (Illus 8-3) He was also the creator of the original goose-necked putter, his being called "Old Pawky." It is Park who gave us the saying, "The man who can putt is a match for anyone." The stories of Park's putting prowess are legendary. One tale describes Park dropping nine balls on the green at a distance of three yards and not only holing them but also having called whether the ball would enter on the left side, right side, or middle of the cup. In his book, *The Art of Putting* (1920), Park says, "I believe I have devoted more time to the study and the practice of putting than any other golfer." And it's been documented that Park would practice putting up to eight hours a day, which may give an indication of one of the secrets of success in putting...*an abundance of practice.*

The next great putter to receive considerable notoriety was Walter Travis, the U.S. Amateur Champion in 1900, 1901 and 1903, and the British Amateur Champion in 1904. His story of being the first American ever to win an international title is legend and is certainly worthy of being briefly recounted here.

Travis was born in Australia, came to this country as a boy and didn't take up golf until the age of 34. In only four years he became the American Champion. A more unlikely champion would be hard to imagine. He was a small man standing only 5'6" and weighing 138 lbs. Travis wore a beard, smoked a cigar while playing and was a notoriously short but accurate driver.

It was said that he could beat anyone in the world on a course 10 yards wide with a 30 knot wind blowing. It was also said of Travis that he could hole a ball from 60 feet putting on peanut brittle. Thought to be thoroughly outclassed and overmatched in the British Amateur of 1904, this bespeckled business-like Yank proceeded to mow down one opponent after another of Britain's finest. This success was due largely to the amazing accuracy that he enjoyed on the greens utilizing a new putter loaned to him at the last minute by a friend from Schenectady, N.Y. This devasting center-shafted implement became known as "The Schenectady Putter." Travis went on to upset long-hitting Ted Blackwell in the final. Later, in 1910, the R & A declared the center-shafted putter illegal in their competitions, and it remained that way for over 40 years.

Another great putter who had a name similar to that of Travis, was Jerry Travers. He won the 1916 U. S. Open and, coincidentally, played out of the same club as Travis, the Garden City Golf Club on Long Island. If a chronological list of great performers on the green were to be continued it would have to include the man with the gentle touch and golden wand, Bobby Jones. A contemporary, Walter Hagen was also brilliant on the greens as were later arrivals Paul Runyan and Horton Smith. (Illus 8-4) In the next generation the triumvirate of Hogan, Snead, and Nelson, though having periods of solid, if not brilliant putting, were better known for their shot-making skills. A foreigner, Bobby Locke of South Africa, was the greatest putter of that era with close competition from players like Dr. Cary Middlecoff, Lloyd Mangrum and that master of the short

club, Jerry Barber. Another foreign player who brought his putting prowess to everyone's attention was Bob Charles from New Zealand. Those who compete against Billy Casper concede his wizardry on the greens, and acknowledge that he is one of the all-time best. Before his late career doldrums, Arnold Palmer was better than "just good." When he had it going — he was *great.* And finally, few would choose anyone other than Jack Nicklaus to make the putt that counted under pressure, he did it again and again to win major titles. There are others who are, or may have been as good, maybe even better: Deane Beman, Bob Rosburg, Ben Crenshaw, George Archer, and Doug Ford. Characteristics of some of these great putters' styles are included in the following text.

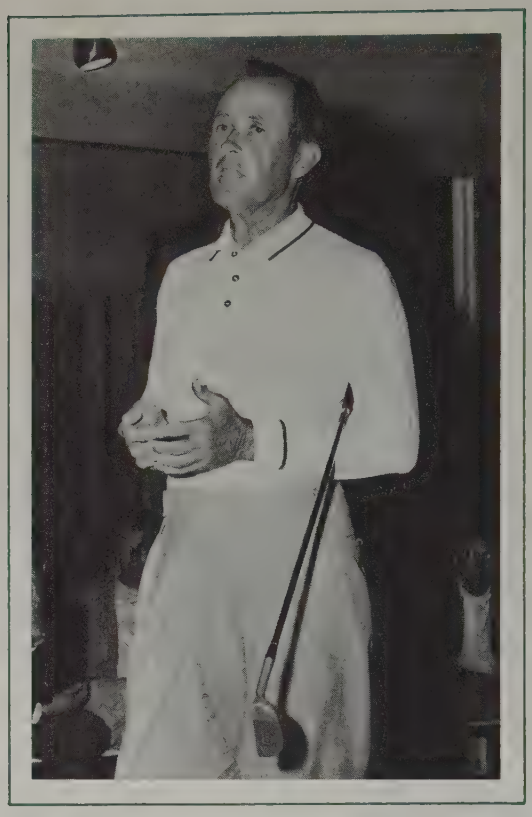
Paul Runyan

Grip — Each hand positioned so that if opened the palm would face upward and inward at 45 degrees. Reverse overlap grip with equal hand pressure.

Set-Up — Eye line over the ball, forearms in line with an extension of the putter shaft and flexed at 45 degrees, feet parallel to target line, ball opposite the left big toe inside the shoe, weight evenly distributed, feet slightly less far apart than the shoulders.

Stroke — Firm wristed, eliminating any wrist action using the forearms to swing. Stroke is an arc moving inside the target line as it gets longer. The face stays square to the arc but not to the target line throughout the stroke. (Illus 8-5)

Special Thoughts — Great putters stick with one method and one game plan. "Never up, never in," should be a part of a player's philosophy for all short putts as well as those in reasonable makeable range (providing the green is not too slick). Visualize the entire trip the ball takes right into the cup but pick a spot about a foot from the ball over which the ball is to start its journey.



Illus 8-5
Paul Runyan, both an expert putter and an expert teacher of putting.

Horton Smith

Grip — Preferred not to use a glove. The left hand holds and steadies the putter as a guide, the right supplies the feel and hit. Used a reverse overlap, with both thumbs pointing squarely down the shaft. Palm and finger grip in the left; fingers in the right.

Set-Up — Make sure that the clubface, right hand and back of the left hand face the target. A square stance, almost even weight distribution but favoring the left side slightly, eyes over ball, left elbow to cup, right elbow to the side, ball played off the left toe.

"The teacher experiences no grave difficulty in having a student understand the importance of putting. Getting them to practice *it is quite another matter."*

John Duncan Dunn

"Compared to the rest of golf, putting looks easy...*Putting is not that simple. It demands constant attention to practice."*

Paul Runyan

Stroke — "Keep it square, keep it low, keep it smooth." Break the right wrist in the backswing but do not let the left wrist break in the forward swing. Seek a right-hand action with no body movement. Visualize hitting the ball with the back of the left hand and palm of the right. Use an intermediate target on the green over which to stroke the ball.

Special Thoughts — The clubface of the putter is the right hand. Limit the body parts involved to be more accurate. "One of the reasons people thought I was a good putter was because I never complained of it." He believed in having two putters, one with a firm shaft, medium flat lie and some loft in the face that is used on slow greens, the other more upright, a bit softer shaft and less loft for fast greens. Finally, adopt a sound method and stick to it."

Bobby Locke

Grip — Left hand grip normal except thumb down the center of the shaft, right hand also with thumb down the shaft but regular overlap style. Grips lightly in the fingers. Never changes grip length up or down shaft for various length putts.

Illus 8-6
Bobby Locke, the man with the unorthodox style, was unrivaled in his putting performance. He putted with an inside stroke as though he were trying to hook the ball.
from Golf with the Experts

Set-Up — Feet are placed four inches apart, left foot three inches ahead of the right in a closed stance and the weight is evenly distributed. Ball position directly opposite the left toe. Addresses the ball on the toe of the putter then hits it in the middle of the putter face so as to prevent cutting across the putt from the outside.

Stroke — Inside takeaway, no wrist action, putter face stays square to hole all the way (hooded). Keeps putter blade low, head stays down. Follow-through equal in length to the backstroke, like a pendulum. (Illus 8-6)

Special Thoughts — Pays particular attention to reading the green in the area around the cup within a three-foot radius. On fast greens will aim at an imaginary hole 6 to 12 inches short of the cup. On longer greens or going uphill will try and rap it into the back of the cup. Make up your mind on the putt's line and pace and don't change it.

Billy Casper

Grip — Tries to confine the feel to the right thumb and index finger. Uses a reverse overlapping grip so the two hands feel as one. Grip pressure "easy but firm." More grip in the fingertips than the palms.

Set-Up — Weight equally distributed over each foot. Varies his stance and set-up according to what is comfortable that day.

Stroke — Makes the wrists act as hinges so the head of the putter goes more abruptly up on the backswing than most players. On the short putts, he keeps it low. Likes to feel the putter head moving freely and then time the face to arrive squarely at the same instant the blade is even with his hands. "Taps" or "pops" the short putts with a bit more stroking action on the long ones. Feels the left hand should be dominant in the stroke.

Special Thoughts — After completing his surveying and reading of the green he sets up to the ball and putts quickly and positively. Casper was endowed with an excellent sense of touch and perception about his surroundings. He practices putting as much as anyone of the modern day players. Putts in a calm and confident manner which is a reflection of his priorities in life — he doesn't feel *he has to make the putt* — it really isn't that important when compared to family and faith. Focuses on speed rather than line, once the line is established.

"Billy Casper is currently one of the best putters from four hundred yards into the hole that the Tour has ever seen."

Tony Lema

Gary Player

Grip — Player removes his glove for better feel. He uses a reverse overlap grip with his left index finger pointing toward the ground and the hands quite close together, as one unit. He is not adamant about grip style as long as it's comfortable and effective.

Set-Up — Eyes over the ball (anything else to him doesn't make sense) and weight strongly over the left heel. Stands fairly close to the ball so likes an upright putter.

Stroke — Prefers a shorter "tapping" stroke on the shorter putts and a more flowing stroke on the longer ones. Keeps the body absolutely steady and the head down well after the ball has been struck. The putter blade stays close to the ground both on the backswing and throughswing and goes slightly inside on the backswing, never outside.

Special Thoughts — Player spent many hours on a friend's practice green in South Africa in friendly but serious competition. He feels practicing in a competitive fashion was most useful in developing his present skill level. Is meticulous in his green-reading preparation, taking the time to get enough information by looking from both sides of the cup. Likes to putt over a spot on the line to the hole. Prefers a heavy feeling putter. Like the rest of his game he strongly believes in a positive attitude, visualizing success.

"The ball doesn't care how positive you are thinking when you hit it with a putter moving and aimed in the wrong direction."

Dave Pelz

Jack Nicklaus

Grip — Reverse overlap, fingers firm, right palm parallel to the face. Back of the left hand slightly to the left of the target and hands at the same height for all lengths of putts. Right forefinger important for touch.

Set-Up — Stance and posture insignificant to Nicklaus if comfortable and stable. Eye line over the ball or over a line extending back from the ball. Putter shaft vertical, hands never behind ball. Ball positioned off the left toe.

Stroke — A leisurely paced sweeping action impelled by the right hand working from behind the shaft in a piston-like fashion. Prefers "dieing" the ball in the cup. Has used open-to-closed, closed-to-open and square-to-square stroke styles all in the same season based on the green conditions. Tries to keep blade low on back-and-throughswing.

Special Thoughts — The long time spent crouching over the ball ready to stroke is not to focus on mechanics but to wait for the right feeling that the putt is going in. Uses spot putting for direction. Practice strokes are copies of what the real one is to be. Before a round the time on the putting green is merely to get the pace — maybe 10 minutes or less.

"Putting is like wisdom, partly a natural gift and partly the accumulation of experience."
Arnold Palmer

Arnold Palmer

Grip — Reverse overlap, light pressure with control. Removing the glove to grip in putting is more habit than important principle. Right hand is the touch or master hand.

Set-Up — Early in his career, knees inward, pigeon-toed stance to lock body from moving. Weight basically equally distributed, but to the insides of the feet. Eyes directly over the ball.

Stroke — The most important principle is "hold still," a totally motionless body except for arms and hands. A charge putter who is never concerned about the length of the "comebacks" that miss the hole. Stroke is close-faced going back, square at impact, open at the finish. This is made possible by wrist action in the swing. (Illus 8-7)

Special Thoughts — "We learn to read greens in the same way that we learn to read books, by mastering the basic rules and then reading, reading and reading." A closeup look at the hole will psychologically reinforce the ample size of the target. Putting control should be focused in one hand as the master. Under pressure, grip lightly, swing slówly and make sure to complete the backswing.

Illus 8-7
Arnold Palmer, when at his best he was the best.

from All About Putting

Seve Ballesteros

Grip — Reverse overlap, index finger of the right hand extends down the shaft farther than normal. Light pressure that is even in both hands.

Set-Up — Comfort is number one, so Ballesteros changes somewhat from time to time. Putts from a slightly open stance with the feet less wide than the shoulders. Eyes are over the ball, ball in line with the left heel.

Stroke — Watches the heel of the putter to keep the face square. Tries to hook putts that break from right to left and slice ones from left to right. He believes in his touch. Uses a pendulum stroke, making the putter swing at the same speed, the same distance, at the same height. Counts 1-2, 1-2, 1-2 for rhythm. (Illus 8-8, 8-9)

Special Thoughts — Thinks distance putting important. Has practiced in the dark when he couldn't see the cup, just to get the sense of the stroke. Feels that higher handicap players are very poor green readers and aim badly as well. Marks the top of his putter blade in line with his intended ball contact point.

"...it seems to me that we must practice a lot or not at all. The half-hearted, infrequent, casual practice spells just before a tournament usually serve only to confuse a player, by awakening him to the fact that he can hit the ball in a dozen different ways and still miss *them."*

Henry Cotton

"Every putt can go in, but I don't expect every putt to go *in."*

Jane Blalock

Illus 8-8
The putting style of Seve Ballesteros, a simple arm swing pendulum style...
Photo courtesy of Golf World

Illus 8-9
...without trying to keep the blade low in the finish.
Photo courtesy of Golf World

Ben Crenshaw

"If there's one thing certain about putting, it is that it's an individual business. The great putters have used every conceivable type of grip, stance and stroke."

Ben Crenshaw

Grip — Reverse overlap grip with the thumbs on top for better feel. Palms face each other and work together. The thumbs are the feelers so should be put in a position to get the maximum feel.

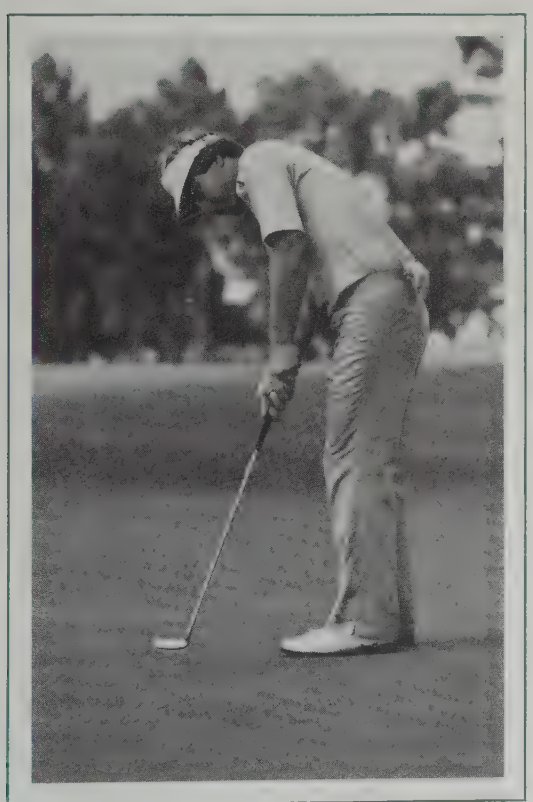
Set-Up — Eye line a bit inside the flight line with the upper back slightly horizontal. Hands underneath the shoulders. Stance almost square, slightly open, feet six inches apart, weight almost even, favoring the left.

Stroke — A definite arm and shoulder stroke with the hands solid throughout. Accepts a little wrist action on the long putts. The putting stroke should fit the personality and resemble the full swing. Keeps the head steady, feeling it's one of the "absolutes." Very even, unhurried pace in pendulum fashion, but inside to on-line to inside. (Illus 8-10)

Special Thoughts — The ability to hole short putts is largely mental, i.e., fear of missing causes most of the missing. The most common mechanical reasons for missing short putts are deceleration and raising up to see the result. Develop a clear mental picture of the perfect putt, otherwise uncertainty will ruin the stroke. Take practice strokes to help establish a positive attitude and make them rehearsals of the stroke you plan to make. Think in the present tense of simply making your best stroke, letting the results take care of themselves.

"Don't try too hard to hole every putt. A 'must make' attitude puts too much pressure on your stroke...Just do your best to get the correct line and speed and roll the ball at the hole on that line."

Ben Crenshaw



Illus 8-10
There seems to never be any left wrist breakdown in Ben Creshaw's stroke.

Putting — The Principles

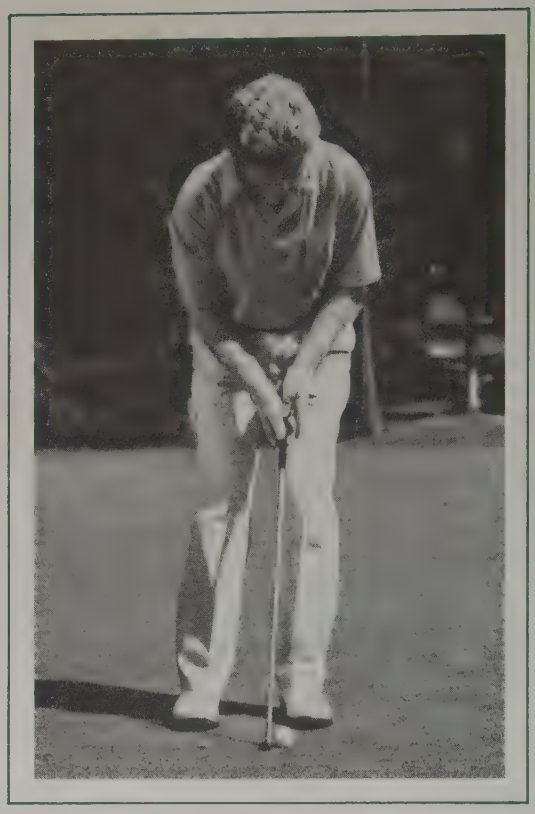
Lee Trevino has observed that if a player is putting badly, then one of four things is wrong:

1. A bad stroke.
2. A bad system of planning and reading putts.
3. A bad attitude.
4. A bad putter (club).

All four will be covered here, starting with technique. As is the case with any specialized skill, there is not universal agreement on how putting should best be performed. Players develop their own putting mechanics which become important to their success, but these mechanics may not be to someone else's liking. For example, Arnold Palmer preferred the knock-kneed, toed-in stance to stabilize the body. Another player may find a more effective, but different way to accomplish the same thing. There may be no single element of overall putting *technique* that every great putter agrees upon, but there are a few that a majority support. They are:

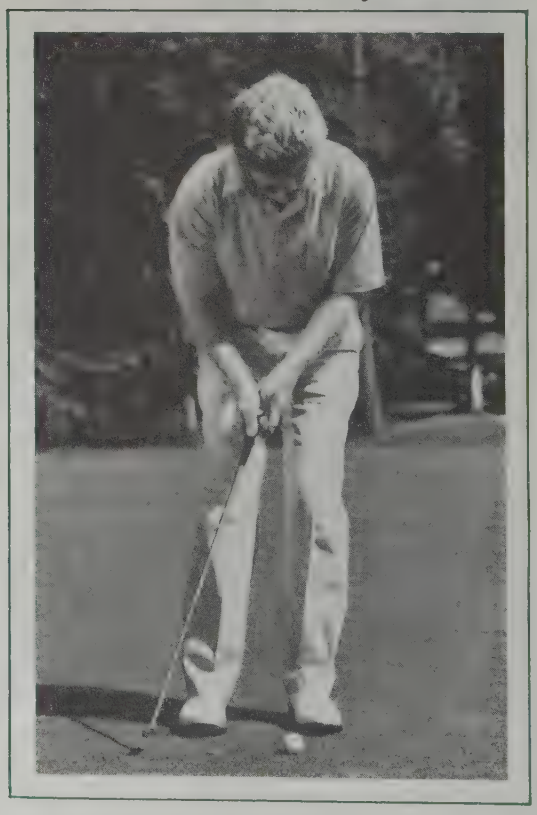
1. *Eye line over or slightly inside the ball.*
2. *Set the clubface square to the target.*
3. *Position the ball forward of center.*
4. *Keep the body motion limited.*
5. *Use an accelerating stroke.*
6. *Be comfortable.*
7. *Make solid contact by hitting the ball in the putter's "sweet spot."* (Illus 8-11, 8-12, 8-13)

There are exceptions. Bob Rosburg, a great putter in his own right, said, "One *unswerving fundamental* is that the toe of the putter *must be* on the ground not in the air." Apparently this was before Isao Aoki or even Deane Beman hit the tournament scene. "Keep the body motion limited" is on the principles list and is good counsel. However, Bobby Locke, one of the greatest performers on the greens, perceptibly moved his body as did Bobby Jones. There are further exceptions to the above list of maxims, so teachers should not be totally dogmatic about the seven preferences listed here. Yet, by using them as a guide, the teacher will not vary far from proven convention.



Illus 8-11
Tom Kite exhibits the seven principles that the majority of teachers agree upon for putting.

Photo by Dom Furore



Illus 8-12
Back with no body motion.

Photo by Dom Furore

"Don't spend your golfing life in one putting experiment after another. Too often a golfer will continue experimenting simply because he is too lazy to perfect a technique through practice. For lack of practice his putting remains uncertain and he continues to look for some magic putting system."

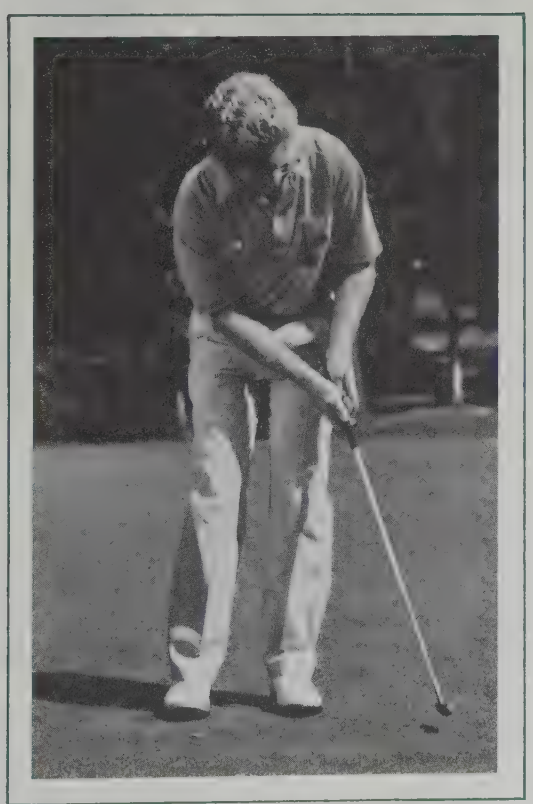
Charles B. Cleveland

What's Important In Putting

The body's physical requirements for putting are minimal. Golfers with low levels of strength and flexibility can be accomplished putters, though not able to drive a golf ball over 200 yards. In fact, putting and the accompanying short shots around the green are the beautiful equalizers between the power and finesse players in this game of golf. *It is not the mechanical requirements that separate the poor from the great putters.* With practice, anyone can develop a solid, repeating, mechanical stroke. The problem is that few will make the effort, and even if they do, they still may fall short of being superior putters because there are requirements beyond the mechanical stroke which they fail to master. *A successful putter must also have the ability to judge slope, the sensitivity to feel the proper speed, and the courage to act on his decision once it has been made.* So, the requirements for superior putting are more challenging than may first appear to the new player. However, by themselves, the mechanics are relatively straightforward.

The Requirements

Simply stated, what one must do to produce a successful putt is: a) roll the ball on the correct path, and b) do so at the right speed, i.e., the same requirements as for all other golf shots. To start the ball on the proper path, one must first decide what that path is. In other words, one must "read the green." The decision will be determined by slope, green speed, grain, length of putt, the ball and the putter itself. (These factors will be covered further toward the end of this chapter.) Assuming the player has read the green correctly, the ball must be struck with the putter blade at right angles or "square" to the correct starting line. How does one do that?



Illus 8-13
Through farther than back, suggesting acceleration.

Photo by Dom Furore

Grip — Aim — Set-up

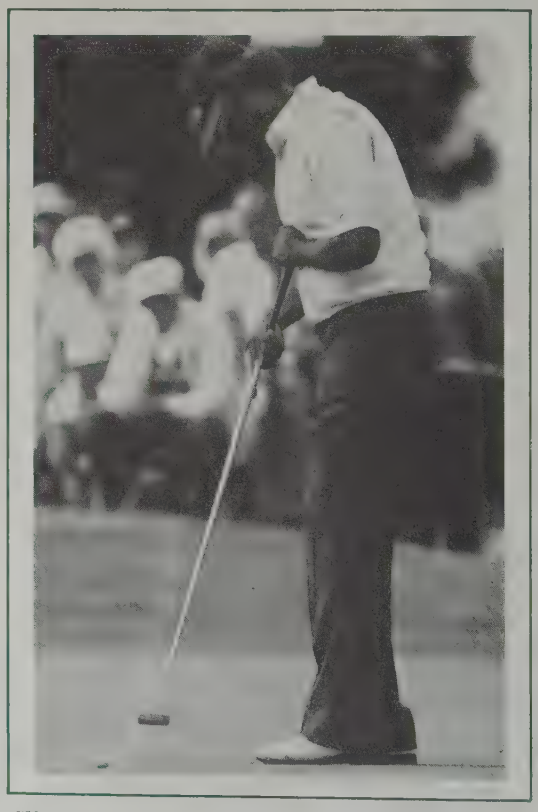
In putting, there is a minimal need for power so the stroke is the shortest of all golf swings. With a shorter stroke, less opening and closing of the clubface is produced. To reduce hand rotation, suggest the use of a grip different from that used in the full swing. The student can find a functional grip by first bending slightly at the waist so the arms hang extended. Then, raise the hands by bending the elbows until the hands reach the desired location on the putter grip. The more the elbows are bent the more the hands will rotate to a palm upward or skyward facing if they are to be in their most natural position. Most teachers today recommend a taller posture than in previous generations, meaning a longer arm hang. This produces a natural grip that finds both thumbs pointing more down the shaft. Because the player stands closer to the ball and the lie of the club is more vertical, the grip will run more diagonally across both the left and right hand. This helps to reduce wristiness and clubface rotation.

The player has quite a variety of grip styles from which to choose, starting with the overlap, interlock or ten-finger grip, one of which he probably will use for the full swing. But, since the velocity required in hitting a putt is so low, several other variations are possible, such as: reverse overlap, split-handed, cross-handed, left-handed, finger-down-the shaft, hands-overlapped plus many other individualized exotic styles, as well as the grips that are used for the side-saddle and the extended-putter-length technique. (Illus 8-14, 8-15, 8-16, 8-17) Most common among all grip choices is the reverse-overlap which puts the entire right hand on the grip and brings the two hands quite close together to better work as one unit. Among the others, the advantage of cross-handed and split-handed is that the left wrist is less likely to collapse in the forward stroke. All the grips mentioned are viable options which may be recommended by the professional, particularly if the conventional reverse overlap style is not effective or comfortable.

Aiming accurately may be the most difficult and most important element in the mechanics of putting. One of the greatest putters who ever lived was amateur golfer, Mark G. Harris, a retired clothing manufacturer from Chicago. He took up golf at the age of 66 and set about practicing for several months with a carpenter's square until *he could tell a right angle from a half mile away.* Harris realized that to consistently hit a 4¼" target one had better be able to aim precisely. He was very correct in his thinking.

One set-up similar to Harris' that is quite functional is also quite teachable. Simply stated it is as follows: a) ball forward of center (check by putting a shaft in the ground to locate the center), b) eye line over the ball (check by dropping a ball from between the eyes), c) weight focused and stabilized on the left foot (check by raising opposite foot momentarily), d) feet, shoulders and arms square (check by placing a shaft across them), e) be comfortable (ask the student).

Illus 8-14
The reverse overlap grip, where more of the fingers of the right hand are on the club, is the most popular today.



Illus 8-15
Split-handed with a long putter is easier on the back and the nerves for Charlie Owens and many others.

Photo by Jeff McBride

Illus 8-16
The cross-handed grip for putting has its adherents in both professional and amateur ranks. PGA Tour star Bruce Lietzke is one of the most faithful adherents.
Photo by Stephen Szurlej

Illus 8-17
Split-handed, croquet-style putting is not a totally new idea.
Photo by H.W. Neale

Grip pressure in any style varies from light to firm depending somewhat upon what fits the player's philosophy. Is he a touch putter, a "jammer," wristy, or an arm-and-shoulder type? Whatever the choice, most teachers and players would agree that whether gripping firmly or lightly, the idea of keeping the grip pressure constant throughout the stroke is a valuable asset.

How To Teach Putting:
A Putting Rationale and Teaching The Stroke

Starting one foot from the hole has been recommended for years as an effective way to introduce a beginner to the golf swing. Introducing a person who is learning a skill to a task he can accomplish successfully is psychologically sound because early success is important to the learner. Success breeds motivation and the desire to continue, whereas failure is discouraging and fosters the thought of quitting. One foot from the hole is a reasonably safe distance to assure success. (Illus 8-18)

Illus 8-18
Starting one foot from the hole guarantees early success.

Teaching Putting to a Group: Direction Control

Arrange your group where they can comfortably see, then discuss and briefly demonstrate putting, both long and short. Explain that there are two problems with which to deal — Distance and Direction — and that first you will work on Direction. Explain that to get the proper direction one must deliver the club toward the target and present the clubface at right angles to the target. To help the player do this, use a 2x4 as a guide for the stroke. Three-foot lengths of 2x4 wood have been widely used by such noted putting specialists as PGA Professionals Labron Harris Sr. and Conrad Rehling. Giving the pupil these learning aids can help promote a sound stroke technique from the beginning. Draw or paint a line across the top of the board, in the middle, at right angles to the board's length. Use that line to help the student see if the clubface is square. Find a level spot on the green. Place the board so the line in the middle of the board is one foot from the middle of the cup. Rest the heel of the putter against the board so that it can ride back and through against the board's edge. (Illus 8-19, 8-20) The board will guarantee that the path is correct at impact; the student must simply return the face to square. If the stroke is a pendulum-type, natural stroke (f 8-1), with no manipulation of the hands, the face will open slightly on the backswing, square itself at impact and close slightly on the throughswing.

"Mechanics are about 10 percent of putting – feel is 90 percent. But good mechanics lead to good feel."

Tom Watson

f 8-1 Pendulum stroke is one of equal length both back and through.

After a few trials without a ball, have the student place the ball opposite the line on the board so that it will be at the sweet spot, theoretically, the middle of the putter head. Ask him to use the same stroke used as when the ball was not there. With the face square at impact and the path on the board, the ball will go into the cup, i.e., success. After a few more successful attempts, move the board back to two feet, then three feet. Do not use the board when putting from a longer distance because the clubhead must naturally start moving to the inside on the backswing as the swing gets longer and back to the inside in the follow-through, assuming it's a nonmanipulated stroke from a natural set-up position. (f 8-2)

Have the student step away from the board. Then with no ball and *eyes closed* he should be able to feel the pattern of the swing.

Then, *open the eyes* and repeat. Next, put him on a T-square from three feet to establish correct alignment and have him reproduce the pattern he's been doing. This can be a chalk line, string, or a manufactured teaching aid. Assuming the T-square is aimed correctly toward the target and the player matches it with the clubface, the rehearsed stroke will again produce success. After several trials, move him away from the T-square to putt at the same distance from the cup, but with no guide or alignment aid. Practice from there, occasionally return to the board and complete the already rehearsed cycle.

f 8-2 There are putting devices which have you stay on a straight edge all the way back and through, keeping the face square the entire way, even on the longer putts. This requires, however, that the player manipulate the face by closing it going away and opening it going through, or set-up so the hands are directly under the shoulders, which is not natural. It's more a manufactured technique, but it does work.

The basics of *Direction* have now been covered, i.e., a center-face hit, with the blade at right angles striking the ball while on a path going toward the target. The next problem is *Distance.*

Distance Control

"The hole will not come to you: Be up!"
Young Tom Morris (to his father Old Tom, notorious for leaving putts short).

Already the student has experienced that short putts only require short backswings with enough pace to get the ball to the cup. Now its appropriate to demonstrate that an important controller of distance is backswing length. Place balls at three feet, six feet, and 12 feet. The student should then stand facing the teacher so he can see the length of the backswing. Emphasize retaining the same stroke that was used on the board, but gradually increase the backswing to provide the extra energy to get the ball to the hole from longer distances. If made in a natural fashion, the stroke will gradually increase in speed, creating acceleration to and through the ball. This acceleration is one of the fundamentals in all golf strokes. *Deceleration, in anticipation of making contact with the ball, or from fear of missing the putt, is a stroke killer.* Let the student experience the judgement of distance by giving him several long distance targets of varying length. Place tees in a six-foot diameter circle around each cup. Get the student to focus on rolling the ball into the circle so his next putt will be of three feet or less. (A sample putting lesson plan is included in Appendix 8-A.)

Illus 8-19
Putting with the heel of the putter riding on a 2x4 is an effective practice task for the beginner and professional alike, providing the distance of the putt is limited to around 4 feet.

Illus 8-20
If a 2x4 is not available, a club will do.

Attitude and the "Yips"

There is no skill in golf where lack of confidence demonstrates itself so dramatically as in putting. Good putting starts with a good attitude, and that attitude is — I CAN PUTT! (Illus 8-21)

Although the reader may not believe in psychokinesis (the ability of the mind to move an object without using physical means), it almost appears possible in putting at times. Any golfer who has experienced the special feeling that a particular putt was going to drop, even before he hit it, and then makes it happen, gets the sensation that one can literally "will the ball into the hole." What's happening, of course, is that a positive attitude is allowing the player to make his best stroke which markedly increases the chance for success.

On the other end of the spectrum is the feeling that "there is no way I'm going to make this putt." Such an attitude can cause dire consequences, especially on short putts.

The spasmatic reflex action that is produced in the hands when one is faced with a short shot on or around the green is called "the yips." Its cause — fear of missing. Since this psychosomatic condition (a body response caused by one's thoughts) is most prevalent in putting, that is the context in which it will be discussed.

Players seldom "yip" long putts because they are not expected to make them. A higher expectation level is experienced as the putt becomes shorter and the "yipper" feels greater levels of self-imposed pressure. It is this pressure to "not fail," which, when it gets out of hand, expresses itself in many of the classic symptoms of acute fear — tremors in the hands, increased heart rate, shortness of breath, perspiration, shaking knees, hollow feeling in the stomach, difficulty swallowing and arms of lead. *The fear of missing putts comes from having missed putts and remembering the misses.* (Illus 8-22) Theoretically, every experience a person ever has in life is stored in the brain. Most experiences are, for all intents and purposes, lost because they made no particular impression and no attempt was made by repetition or reinforcement to store them in the active recall memory. But a traumatic missed putt or a series of missed putts in competition which caused a player to lose a title or a check can make a vivid impression that is easy to recall. In fact the player may frequently and unwittingly recall and refer to it. The mental recall of the negative experience causes a physiological response: the player "yips." Here are some suggestions to help a student who develops this problem:

1. Employ a selective memory. Forget the bad experiences and shots, focus on the good ones.
2. Get things in perspective. Making or missing a putt has little influence on mankind or the course of history. A miss will not cause the player to lose his life, health, family, home or anything of real value, so what's to fear?

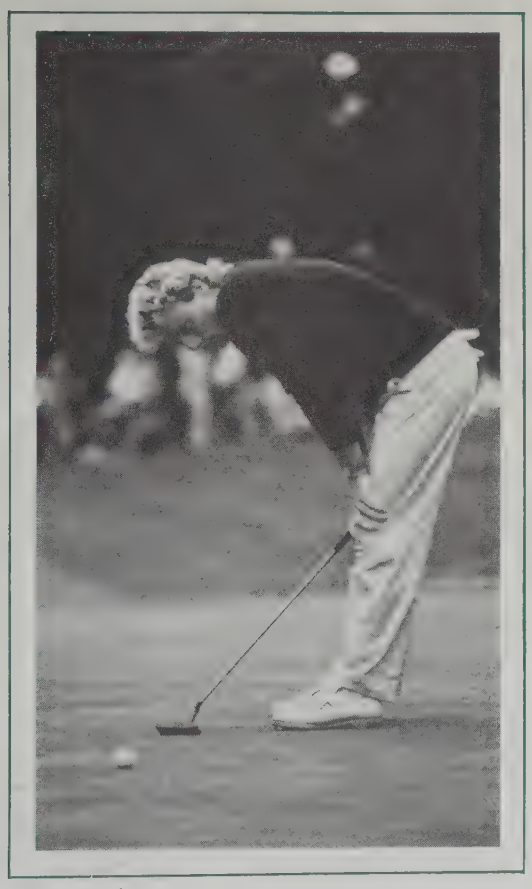
Illus 8-21
To be a good putter you must feel you can putt, like PGA Professional Kevin Cashman.

"It takes steadier nerves for that good, long stroke. A nervous individual can't putt that way."

Harvey Penick

"The prime requisite for putting? An abounding confidence *in one's ability."*
Walter Travis

"No amount of eccentric implement will make a bad putter putt better."
W. T. Linskill



Illus 8-22
The fear of another short putt missed has caused Bernhard Langer to seek creative putting styles to steady the hands.
Photo by Stephen Szurlej

3. Change putting styles, for example: (a) left-handed; (b) cross-handed; (c) place the right hand in a bent wrist locked "piston-like" position, gripping the left wrist or holding the grip against the forearm; (d) overlap three fingers of the right hand over the left to reduce the right hand's involvement; (e) look at the hole rather than the ball or, just as the stroke is being made, look backward away from the cup; (f) close the eyes; (g) or with a widely split-hand position stroke short putts with one hand; or (h) squeeze the grip tighter with both hands.
4. Change putters. A new putter may give hope which leads to success, building confidence and destroying the yips. Heavier, thicker-gripped putters or the long putters that require a split-hand grip are now in vogue.
5. Develop a routine that totally occupies the mind so that the act of putting short ones becomes very mechanical. Using a number counting system can help where the player hits the ball on, say, six — 1) see the line, 2) rehearse the distance, 3) square the blade, 4) set the feet, 5) exhale, and 6) stroke the ball.
6. Look into psychological counseling geared toward restoring confidence and self-esteem in the player as a putter. Post-hypnotic programming has been demonstrated to be effective with golfers in curing competitive problems like "the yips."

Equipment

Up to the last half of the 19th century all putters were made of wood. A putter created by the craftsman Philp was considered the top-of-the-line and is today a rare collectible. Other makes were developed later such as McEwan, Morris, and Forgan, providing players with choices of style. The first great break from the traditional wooden putter to be broadly accepted and become a commercial success was the Park Patent "Wry-Neck" putter, 1894, the prototype for designs that are still used for many blade putters today. The Braid Mills putter became popular at the turn of the century, selling hundreds of thousands. These aluminum mallet putters were named after five time British Open champion James Braid, and made by the Mills Company of Sunderland, England. A putter of similar design, the previously mentioned Travis' "Schenectady," took the golf world by storm and was a center-shafted mallet-style putter with an aluminum block head.

Like the Schenectady, the next famous putting instrument was a second-hand gift, but this time it was a goose-neck blade style, an offshoot of Park's original patent, given to Bobby Jones while visiting the Nassau Golf Club on Long Island. He immediately found it to his liking and became so "deadly" putting with it that it was christened "Calamity Jane," named after the sharpshooting female Wild West performer.

Just prior to World War II, Spalding and Company brought out a center-shafted blade putter, called the "Cash-In" putter, that dominated the putter market. It reigned supreme shortly before and after World War II when it gave way first to the Tommy Armour "Iron Master," followed by John Reuters "Bull's-eye," Wilson's "Arnold

Palmer," and finally the champion of today, Karsten Solheim's magic wand, the "Ping." There have been others, of course, from Basakwards, T-line, Zebra, Response, Potato Masher, Otey Crissman, T.P., Mills, and Freddie Haas; some steady sellers, others bright flash-in-the-pans. Less than a dozen putters in a hundred years have dominated the market. Two things are clear: 1) *Not everyone agrees on what is "the best putter,"* 2) *all great designs have been able to dominate the competition during their heyday, yet were eventually replaced by a "new kid on the block."* (Illus 8-23)

"All I can do is start it. The Lord handles it from there."

Jimmy Demaret

Illus 8-23
Some of the most popular putters in the game's history, from right to left: McEwan wooden putter; Park Wry-Neck; Braid-Mills; Schenectady; Calamity Jane; Bull's-eye; Cash-In; and Ping.

Helping Your Students Select a Putter

Choosing the right putter can be very important. But how do you know what's right for the student? And, if it's right today, will it be right tomorrow or next month? You'd think Arnold Palmer, who has a collection of some 3,000 putters, might possibly be able to answer that question, but he, too, is *still searching* for the perfect tool with which to putt. Other players like Bobby Jones and Bobby Locke found a favorite and kept it for a lifetime.

Selecting a putter is a very subjective exercise. What looks great to one touring professional looks horrible to another; what is functional to one amateur is useless to another. Aesthetics are a part of preference, and beauty is in the eye of the beholder. That's why we have such a wide variety of putters. Look at Illus 8-24 and you'll see just a sampling of man's efforts to design the infallible putting tool. The best putter designs, coupled with the best advertising, capture the highest share of the market, but no one brand gets it all because everyone's taste is not the same.

Illus 8-24
A variety of putters that work for a variety of people.

Illus 8-25
Advancing the hands de-lofts the putter.

Illus 8-26
With the hands pushed to the right, loft is added to the face.

One approach in putter selection is to offer the pupil several choices. For example, while teaching a class, a variety of putters may be brought out and the features explained for each style. Point out some of the following choices available to the consumer:

Head

- Blade (style)
- Blade with Flange
- Mallet
- Heel-Toe Weighted
- Sole Design
- Loft
- Material (brass, aluminum, wood, etc.)
- Shape
- Lie Angle

Shaft

- Length
- Goose Neck or Offset
- Center-Shafted
- Material (steel, graphite, wood, aluminum, etc.)

Grip

- Material (rubber, leather, composite, etc.)
- Size (standard, over- or undersized)
- Shape (round, square, paddle, pistol)

Other

- Overall Weight
- Total Design
- Color
- Materials for Insert

Traditional advice on putter selection has been to choose a heavy putter for slow greens and a light one for faster greens. Yet, in practice you see few Tour professionals switching putters from week to week based on green speed. More realistically, they simply adjust their thinking and pace. However, if the amateur player's home course has consistently slow greens and that's where he or she plays the majority of their golf, choosing a putter with more weight certainly would make sense.

Green speed may also have some influence on putter loft. The heavier and rougher the green, the more loft is advantageous. Smooth, slick greens will call for less loft. Remember the player's hand position at impact will also influence the effective loft. The set-up position with hands forward reduces loft; the position of hands back increases it. (Illus 8-25, 8-26)

f 8-3 Length of shaft would make a considerable difference in weight.

Putter General Standards

	Loft	Lie	Length	Weight (f 8-3)
Less Than Average	2.0	69	32″	10.0 oz.
Average	4.0	73.5	35.5″	11.5 oz.
More Than Average	6.0	79	37″	13.0 oz.

Green Reading

Reading greens is the next subject. Until now, when introducing the skill of putting, all practice should have been conducted on a flat surface with the student's aim line always being the center of the cup. Next, add uphill and downhill putts. Demonstrate the difference in distance the ball travels downhill, then uphill using the same length backstroke. Let the student experience the effort needed for a six-foot putt on a level surface, then a six-footer downhill and uphill. Have him shorten the backstroke putting downhill, but lengthen it for uphill. The student should take note how much less or more stroke length for that distance is needed.

Move to sidehill lies. Roll the ball across a slope just by tossing it underhand from distances of 20 feet, then 10 feet and five feet. Have the student note that on the longer rolls the aiming point is higher above the hole because gravity has a longer period of time to pull the ball down the slope. Have the student practice what has just been demonstrated, first rolling then putting the ball. Next, let him putt over the same distances in reverse, with the opposite break from five feet, 10 feet, 20 feet. This practice demonstrates both the need for a gradually longer backstroke and a progressively higher aiming point plus acquainting the pupil with left-to-right and right-to-left break. *The concept to be taught here is to treat all putts as straight putts.* The ones on sidehills simply have a different aiming point than the cup itself. The student should learn to start the ball along a line straight to that aiming point, letting gravity take over to provide the curve to the cup. (f 8-4) Proper distance, the right direction and good "reading skills," all can be developed through this kind of practice. (Illus 8-27)

"But as I see it, the thing that hurt my putting most when it was bad — and it was very bad, was thinking too much about how *I was making the stroke and not enough about getting the ball in the hole."*
Bobby Jones

f 8-4 For the most complete explanation of the science of green reading see Vector Putting, *by H.A. Templeton.*

Grain as a Factor

Bent grass, rye grass, Bermuda grass and poa annua more than likely are the only types of greens your students will face. Whereas bent, rye and poa have neglible grain, Bermuda has a broad blade, presents the most grain and will noticeably influence the direction and distance a putt will roll. Newer strains of Bermuda, like Tiff-dwarf, are less likely to develop strong grain because the leaf is narrower. Useful information for reading Bermuda with heavy grain could include the following:

1. When the grass looks shiny the grain is going away and the putt will be fast; dull it's coming toward and will be slower.
2. When one side of the cup looks browned-out that is the direction the grain is growing.
3. Rough the surface up in the collar grass to check the grain. (You can't do that on the green as it is against the rules.)
4. Find the setting sun and the grain will generally follow its growth pattern in that direction, although it can also follow water drainage and prevailing winds.

One man who has devoted considerable time to the science of green

Illus 8-27
Nick Price looks for the correct starting line.
Photo by Stephen Szurlej

Illus 8-28
Green speeds are quite different from one course to another, even when slopes may be the same. Therefore, the practice of plumb bobbing to determine the correct direction is far from a true measure. Players, nonetheless, use this system to get general information and to confirm *their selected line.*

"When putting, sense and inspiration desert me I resort to putting by aid of mechanical theory."

Seymour Dunn

reading is Mr. H. A. Templeton of Ft. Worth, Texas, author of the book, *Vector Putting*. Here are some of his conclusions:

— Gravity and slope are going to influence the roll of a putt proportionate to the length of time it is rolling across the green. Faster greens require putts be sent off at slower initial speeds, taking longer to reach the hole, thus allowing gravity and slope to influence them more.

— A putt, at the beginning, rises out of its nestling place and skids the first 15% of its travel before starting its rolling phase. During this time it rides along the tops of the blades of grass largely impervious to spike marks and other irregularities. During the last slower phase of the putt, however, it begins to nestle back down into the grass where green imperfections can deflect it from a true course.

— Off-center hits on the putter face have significant effects on the distance and direction the putt will travel. We may get upset with off-center hits on full shots, but they may be even more important to scoring in putting.

— Attempting to impart additional topspin to a putt is at best inconsistent and if accomplished adds but approximately ¾ of a foot extra roll on a 25-foot putt.

— Aggressive putters who charge the hole and leave their putts more than 3½ to 4 feet beyond are exceeding the top speed that would allow the putt to drop if it hits the center of the cup.

— Players who attempt to "die the ball in the hole" fall victim to the grain, irregularities, slightly elevated cups, spike marks, ball marks, etc., due to the ball losing its speed and settling.

— A very playable putting thought is to judge the speed, so if the ball were to miss, it would finish one foot past the hole.

— Sixty percent of the break of an average putt is going to occur within three feet of the hole. Except in unusual cases the slope at the beginning of the putt has very little influence. This means study more closely the finish portion. (Illus 8-28)

— X-out golf balls are generally the most poorly balanced and can affect a six-foot putt by as much as three to four inches on either side of the hole. The effect is like having a tire out of balance on your car.

— Although grain on the greens can influence the speed when putting against or with it, there is much less effect on the break until the decay phase or last foot of roll.

— When slope is introduced, the initial velocity tolerance for error is drastically reduced. On steeply sloping greens a 12-foot putt becomes as difficult as a 50-foot putt on a level green.

— On a putt 2.5 feet from the hole the permissible error in alignment is a generous plus or minus four degrees, indicating these putts should be automatic — *were it not for indecision.*

And that is where the next writer of a putting book should pick up, dealing with indecision. For even with a laser reading, a chart of the

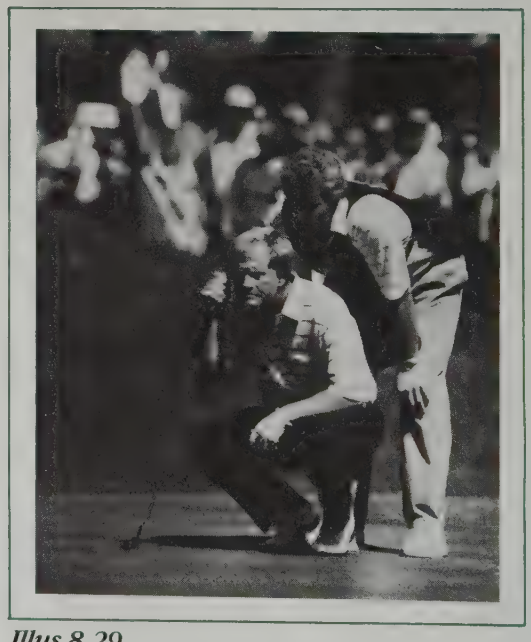
green, a perfect ball, the most scientifically designed putter, and a good stroke, it is to no avail if one doesn't have the confidence to use them. Putting is primarily inspirational, allowing the marvelous computer in the brain to take over and handle the breaks, speed, gravity, vector forces, friction and line. The inspiration, however, will be developed only with practice.

"Develop a pattern and follow it!"
Joe Dante

Ideas and Thoughts on Putting

- Placing the ball either outside or inside the eye line will distort perception of the path to the hole. Outside moves it left, inside to the right.
- Positioning the hands forward or back of the way the putter was made to be soled affects the loft on the putter face. Forward also tends to close it, back to open it.
- Wind can be disturbing to a putting stroke by altering balance. One strategy is to wait until a feeling of steadiness is achieved. Widening the stance and crouching will help.
- Players can become as "ball bound" in putting as in the full swing. Remember the stroke is through the ball, not to it.
- To reduce the chance of deceleration, do the following. On a putting practice stroke make the follow-through twice as long as the backswing, i.e. four-inch backswing, eight-inch follow-through.
- Focusing on making the hands pass the left leg in the forward stroke will also help reduce the tendency to decelerate in the stroke.
- Aligning the putter shaft with the left forearm will provide a useful hand/arm position in the stroke.
- Practicing putting with the leading edge of a sand wedge helps develop precision in the stroke.
- Some players pace off their putts to get a better idea of how hard to make the stroke. If the greens are long, wet, or the putt uphill, they add paces to their count; downhill, dry and fast, they subtract.
- The putting stroke, like the full swing, can be successful with either a light grip and free-flowing swing, or a firmer grip using a leverage-type stroke.
- The choice of putter should be influenced by style. A firm, quick stroker will generally favor a shorter, stiff-shafted putter. A light-gripping, touch-type stroker will generally favor a slightly longer putter with a little more shaft flex. Center-shafted putters are usually better for players who tend to hit on the toe as there is less torque with the center shaft.
- On very fast greens it may help to grip lower on the shaft to reduce the clubhead speed.

"Natural golfers are bad golfers but natural putters are good putters."
Percy Boomer



Illus 8-29
It takes considerable experience to learn to read greens well.
Photo by Stephen Szurlej

— The ball position (forward or back) is critical in putting if the stroke is anything but straight back, straight through. It affects the timing of the clubface.

— Some players are firmer in their grip on short putts as the lighter touch needed for distance discrimination on a lengthier putt is no longer needed.

— A caddy or partner can *help* with the line but only the player himself can *establish* the line since only he knows how hard he's going to hit it. (Illus 8-29)

— There are players who suspend the putter slightly in the air at address which helps them in the following ways: a) focuses on a shoulder and arm stroke rather than hands, b) prevents catching the sole in the grass in the takeaway, and c) causes them not to receive a penalty stroke if the ball moves since they have technically not addressed it.

"What separates the men from the boys on the putting green is confidence *in knowing what they are doing."*

Bob Rosburg

— Some players hit right-to-left breaking putts off the toe of the putter and left-to-right ones off the heel to reduce the tendency to leave the ball below the cup.

— The shoulder line can influence the path of the putter, both back and through. Closed shoulders will encourage an in-to-out stroke, open shoulders on out-to-in pattern. Square shoulders help in producing an on-target line stroke.

— Focusing the body weight on one spot, like the back of the left heel, will help keep the body from moving.

"Bad putting stems from thinking how *instead of* where."

Jackie Burke Jr.

— Practicing long putts to develop good rhythm can also be helpful in establishing rhythm in the full swing.

— Players who wear glasses to play golf may find it easier to putt wearing contact lenses. Distortion frequently comes from the spectacle lens, whereas the contact lens follows the eye movement so the wearer views through the optical center.

— Practicing putting to a smaller target like a tee, another ball or a reduced size cup can sharpen a putter's focusing skills and help psychologically by making the actual cup appear larger.

— Focusing on a spot an inch or two in front of the ball on the correct line helps to start the ball on that line and encourages hitting through the ball.

— Even perfectly stroked putts don't always go in, due to: a) a poor read, b) a poor aim, or c) a poor green.

— Face angle errors are 70 percent more influential than path angle errors on affecting the ball's actual line of travel.

— Some players who were great putters have advocated the feeling of hitting up on the ball on the forward stroke, whereas experts of equal stature have recommended hitting the upper half of the ball but doing it on the downstroke portion of the arc.

— When aiming in golf, particularly in putting, keep the head level. Tilting the head to the right or left distorts the perspective.

For more information including a Putting Matrix by Dave Pelz and a test, "How Well You Should Putt," see Appendix 8-B and 8-C.

CHAPTER 9

Chipping and Pitching

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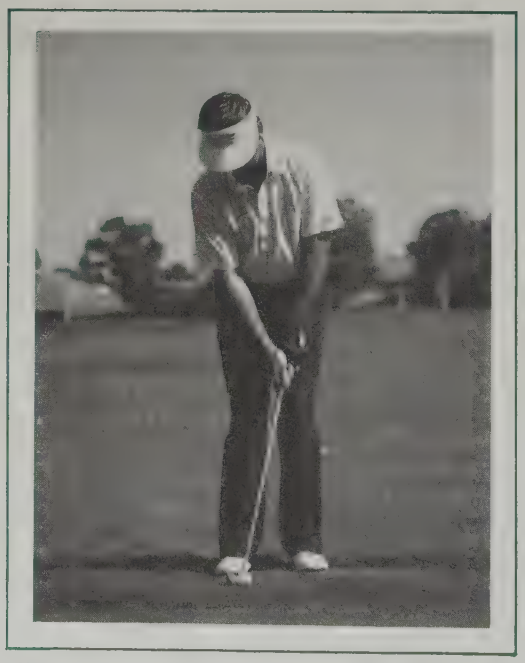
The greatest golfers in the world, those who play on the PGA and European Tours, average hitting approximately thirteen greens per round in regulation figures. That means that four to five times a round an accurate chip or pitch will be needed to save par. At that level of competition, where the difference between winning $50,000 per season and $500,000 can be but one stroke per round, the result is significant.

The high-handicap player whose golf is for fun may hit only two or three greens per round in regulation. This provides him with many more opportunities to save or lose strokes by the quality of his short game. For example, assume that a player has twelve pitch or chip chances in the round. By getting up and down in two strokes rather than three on only 50% of the occasions, the player saves six strokes per round. That's not even counting the times he'll "mess up" and take *more* than three. So, whether one plays for pay or for pleasure, developing additional skill on the shots near the green will be reflected in significantly lower scores.

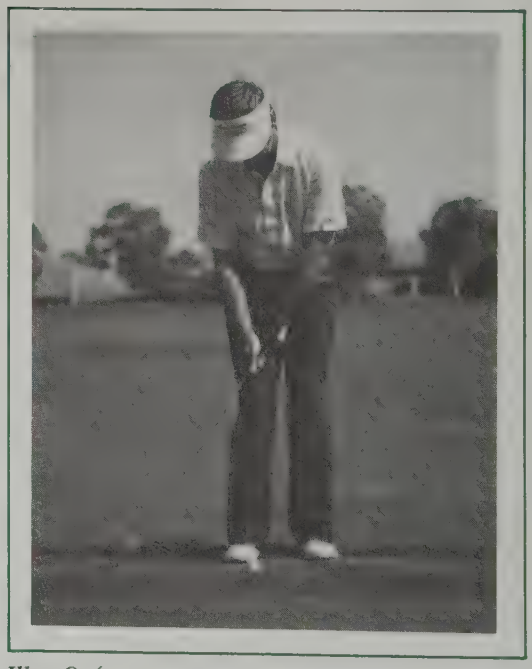
f 9-1 The evolution in pitching clubs was "rut iron," niblick, wedge.

Illus 9-1
Early greens were largely open in front and encouraged a run-up shot with a middle loft iron.

Picturepoint photo



Illus 9-3
A classic chip: weight left, hands ahead of the ball...



Illus 9-4
...one lever, back of left wrist solid, remaining ahead of the ball through the shot.

f 9-2 One may play a loose-wristed chip or firm-wristed pitch.

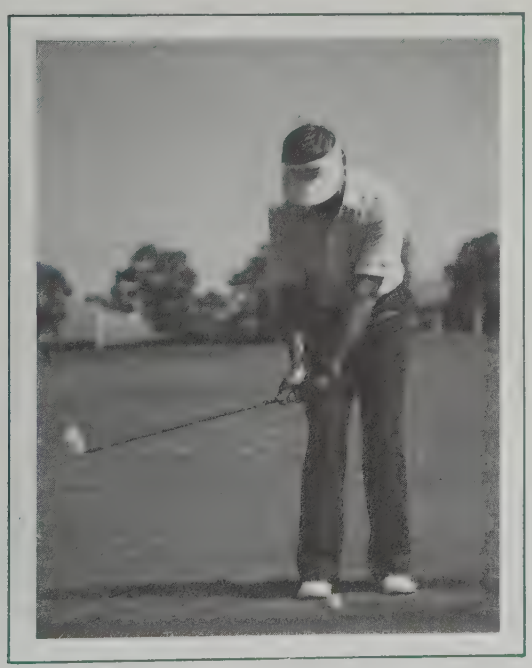
Illus 9-2
Today's game requires frequent use of the wedges for pitching over obstacles and to land softly on the green.
Photo © Walt Disney Productions, 1980

Historically — From Run-Up to Fly-On

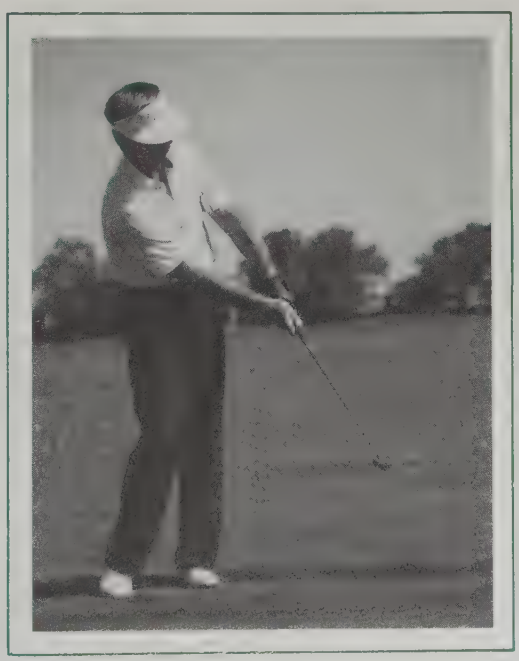
Even in golf's early days when most of a player's clubs were made with wooden heads, the chip or longer "run-up" shot was a part of his arsenal. Due to playing conditions up to the middle 1800s the high-lofted pitch was largely unknown. Greens were small, unwatered and quite firm, causing the high trajectory shot to simply rebound into the air and over the green. In addition to size and firmness, the earliest greens were rarely elevated or bunkered in front. (Illus 9-1) Add windy conditions and one can understand why the "run-up" shot was the preferred style. With changes in green design, the availability of iron clubs that could be forged with greater lofts (f 9-1), and the watering of greens, the pitch shot evolved. As a result, today's golf is played more in the air, with the pitching wedge and sand wedge used frequently around the greens. (Illus 9-2)

Chip and The Pitch — The Difference

What is the difference between a chip and a pitch? One common expression is that a pitch "has more air time than ground time," i.e., it is a lofted shot which flies a greater distance than it rolls. Conversely a chip has "less air time than ground time," rolling a greater distance than it flies. *Trajectory* is therefore a factor in the description: a pitch is high, a chip is low. *Style* can also help distinguish the shot. Chips are usually firmer-wristed one-lever strokes, while pitches may use more cocking of the wrists and hands to create a second lever; an observation generally, though not universally, true. So trajectory and style are two ways to distinguish between a chip and pitch. (Illus 9-3, 9-4, 9-5, 9-6) (f 9-2)



Illus 9-5
A classic pitch: two levers, weight left...



Illus 9-6
...swing the arms, keep the hands quiet.

When to Chip and When to Pitch

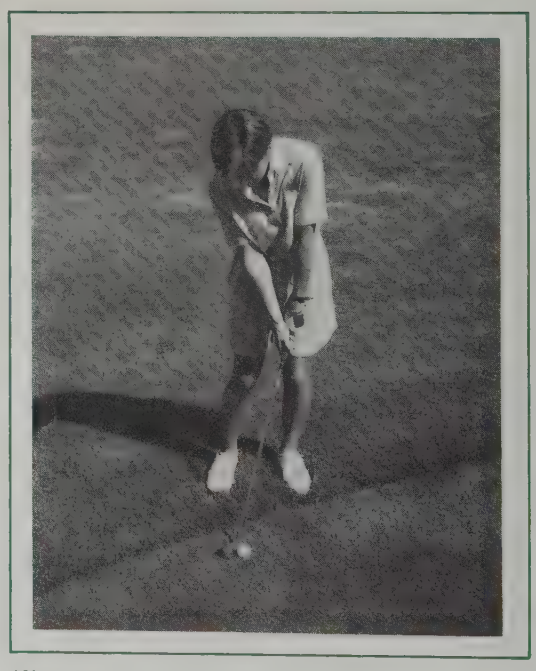
For the beginning student to develop an overall concept for these shots, a demonstration of each, in a "walk around the green" is useful. Offer the following rule of thumb: ***Putt when you can, chip when you can't putt, and pitch only when you have to.*** The basis behind this statement is that it's easier to roll the ball than to loft it. There is more chance for error whenever one has to lengthen the backswing and add velocity. The professional can vividly demonstrate this principle to the student by taking a #6 iron and a sand wedge and intentionally blading the ball with each club at a velocity of swing when using that club to hit a ball thirty feet. The bladed #6 iron won't be far off the intended mark, the bladed sand wedge will go way over the green.

When teaching shot technique, it is important that the student also learn proper club selection. When working on short shots with a pupil, place the ball in a variety of locations. Ask him to decide what type of shot to play, what club to use and have him demonstrate. (Illus 9-7, 9-8, 9-9)

Explain that the chip is used whenever the player is near the green but feels he can't putt due to heavy or uneven grass between the ball and the putting surface. In this situation the ball should clear any intervening terrain and land on the green. This is to achieve the truest bounce and greatest ball control. Demonstrate the pitch and show that it is played when height is needed to reduce the ball's roll once it has landed. Use actual examples, if possible, such as when: 1) the cup is cut close to the fringe; 2) there is considerable expanse of grass, sand or water to carry; or 3) the green slopes away and a soft-landing shot is desired.

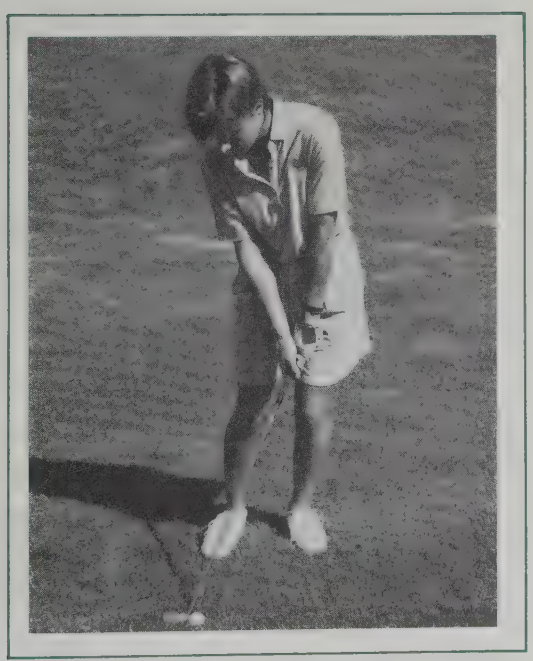
"One secret to scoring is sticking to a simple, consistent setup and swing. For all short shots, I stand open, play the ball in the middle of my feet with my hands ahead, and put most of my weight on the left foot."
Seve Ballesteros

Illus 9-7
This ball, just off the edge of the green, should be putted.

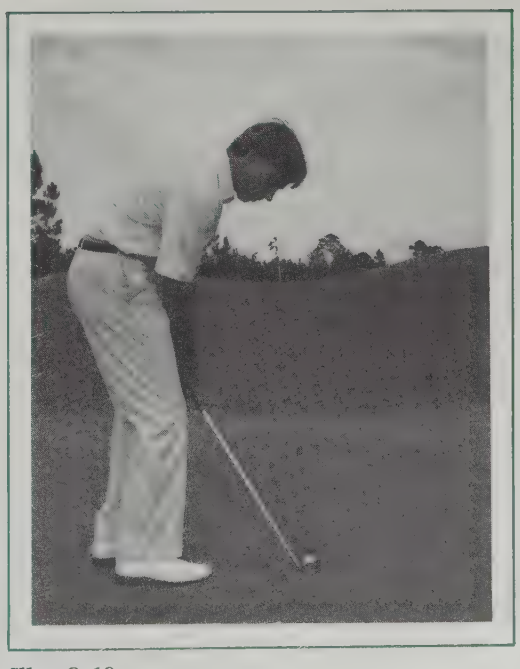


Illus 9-8
This ball, deeper in the fringe, should be chipped.

Finally, explain that there are times when one cannot safely execute a normal chip or pitch due to the ball's lie, the location of the cup, or the slope of the green. When it is not possible to land the ball on the green and stop it short of the hole, the chip-and-run or pitch-and-run is the correct play. Show how this shot is intentionally played to land short of the green to reduce some of its forward momentum. If the player understands these shots, (chip, pitch, chip-and-run, and pitch-and-run), and knows when and how to play them, he'll be able to handle most situations. (Illus 9-10) A look at the fancier shots will come later.



Illus 9-9
This ball, in the rough, should be pitched.



Illus 9-10
There are situations where a special shot is required, like a chip-and-run.

The Chip — A Technique

Assuming that putting has already been introduced and is a part of the player's repertoire, it is an easy transition to convert the putt into the chip. The desired information can be supplied by making comparisons between the two. Using the Socratic method (one which develops a series of questions for the student requiring him to think and become more involved) the professional can demonstrate a standard putting technique, then demonstrate a chip. The student is asked to compare the similarities and differences point by point. When the student is an active learner, rather than a passive one, he becomes more observant. Comparing the style for the putt and the chip, the professional may ask the following questions and wait for the student to answer:

Question 1 — What is the difference between the putt and the chip in how I place my feet?
Answer — *In the chip the stance is open with feet closer together.*

Question 2 — Why is the stance for the chip open?
Answer — *It is easier to sense the target and to swing the club back closer to the intended flight line.*

Question 3 — Where are my hands placed on the grip to play a chip shot?
Answer — *Farther down — shortened.*

Question 4 — Why are my hands farther down on the grip?
Answer — *For better control of the club.*

Question 5 — In the chip, where is the emphasis in the placement of lower-body weight?
Answer — *Over the left foot.*

Question 6 — Where does the upper body's vertical centerline fall in the chip?
Answer — *A line measured through the golfer's sternum (breast bone) should fall about two inches in front (to the left) of the ball.* (f 9-3)

Question 7 — In the chip, where are the hands in relation to the clubhead at address and at impact?
Answer — *Slightly forward, ahead, leading the clubhead.* (Illus 9-11)

Question 8 — Why are the hands placed this way?
Answer — *So the low point of the swing arc will be reached after ball contact rather than before. This helps guarantee a center-face impact. Having the weight left and the centerline ahead of the ball, also promotes descent.*

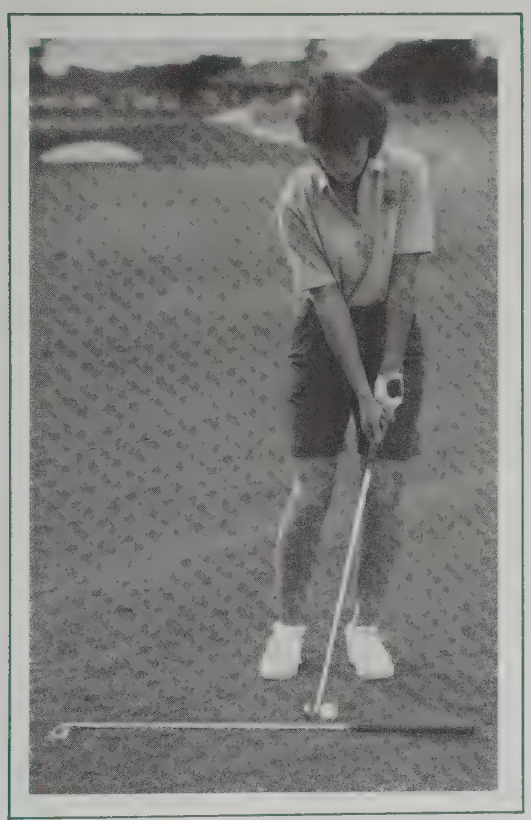
Question 9 — Is the stroke made with wrists hinging and hands active or wrists firm and hands quiet?
Answer — *The basic chip is a one-lever stroke with the wrists and hands quiet and the arms swinging from the shoulders.*

Illus 9-11
A vertical line from the center of the body will fall approximately two inches ahead of the ball on a normal chip and on the ball for a pitch from a good lie. Note: Hands ahead of the ball, on the inner left thigh.

f 9-3 *This is influenced by the lie. The more the ball is sitting up the less the centerline needs be to the left.*

"To save shots around the green... 1) visualize your trajectory, 2) in all cases, align the hands directly beneath your swing center, and 3) make an unhurried motion."
Jack Lumpkin

After the questions are completed and the pupil demonstrates an understanding of the technique, have him perform. Place an extra club on the ground with the grip end pointing just to the right of the cup. Set a ball in the grass as a reference ball position. (Illus 9-12) Ask the pupil to take his/her grip, aim and set-up with a #6 or #8 iron. Then have the student check to see if his/her hand placement on the grip has been shortened, weight is setting left, hands ahead of the ball, and stance open. From that position, he/she should be able to step back and swing with a pendulum, single-lever motion, making consistent brushing strokes through the grass just ahead of the ball, with a slightly descending stroke. After brushing the grass several times, have him/her move forward so the ball is now in the way of the stroke. The club's path will travel slightly inside on the back stroke, returning to the flight line, then continuing to slightly inside on the forward swing. It may appear to the student that the back-and-throughswings are straight along the shaft of the club lying on the ground, but this is due to the perspective of sighting from above at an angle. Repeat the procedure by making three types of practice swings: one over the club on the ground following the direction line; one stepping back from the club and brushing the grass ahead of the ball with hands and wrists firm, though not rigid; and one to feel the pace for correct distance. Then allow the ball to get in the way of the "feel swing" just rehearsed. It is this rehearsal swing that the student needs to utilize on the course to get the feel of distance for the shot.



Illus 9-12
Setup for the chip: Ball centered, weight left, hands ahead of the ball, feet slightly open (could be more), grip shortened down.

The Basic Pitch

The transition from chip to pitch can be made in a simple way. Continue the same one-lever chipping stroke with the student using a pitching wedge. Since the purpose now is to achieve a higher trajectory, the centerline of the body can now be moved directly over the ball (assuming the lie of the ball is good). This will move the club's handle slightly back to the right, adding a small amount of loft to the club's face.

Here is where the student faces a psychological challenge. He is aware the shot is to have a higher trajectory. The club in his hand has a deeply lofted face. So the instinctive thing to do is to try and lift the ball up. This causes the right hand to prematurely uncock, the left wrist to break down and the clubhead to pass the hands so that it bottoms out too soon, either striking the ground behind the ball or striking the ball with the leading edge of the club rather than with the face.

To help overcome this tendency here are three suggestions:

1. Use an extender inserted from the butt end of the club and have the student maintain the extender the same distance from the left side of the body at the completion of the swing that it was at address. (Illus 9-13)
2. Kneel in front and to the side of the student and hold the clubhead, with the shaft and grip of a club horizontal to the ground, a couple of feet in the air, like a hurdle. Ask the student to attempt to pitch the ball just under the club. This produces a descending stroke allowing the clubface to contact the ball, lofting the shot over, rather than under, the club. (Illus 9-14)
3. Have the student "block the face" or pull in the left arm by bending the left elbow at impact and into the follow-through. This encourages the left arm to stay ahead. (Illus 9-15) All three are possible ways to keep the right hand from passing the left.

Illus 9-13
An extender from the club's butt end will tell the student whether he/she has let the left wrist break down and the clubhead pass the hands.

Adding The Wrists

Once the student is able to negotiate the one-lever pitch, have him repeat the same stroke but add a small wrist break in the backswing. Make certain he finishes the shot just as he did when no wrist break was present, i.e., with the left wrist still flat. With this additional wrist-cocking added, the backswing of the club will lengthen and the shots carry farther.

A useful verbal coaching cue in comparing the chip to the pitch is to describe the chip stroke as "arms back — arms through" and the pitch stroke as "hands and arms back — arms through." The hands will return the face squarely without conscious effort as long as too much grip pressure is not applied. There is also a style for both the chip and pitch which might be called a "body chip/pitch." The arms and hands are kept relatively (though not totally) quiet while the trunk is turned to the right in the backswing, finishing well up over the left foot in the follow-through. It's a style which attempts to take the small muscles (the hands) out of the stroke by fixing the impact position, then turning away and returning through that position. The player employing this method will feel more firmness in the abdominal and lower back region. (Illus 9-16)

The wristy chip style which gives a sharp "rap" or "tap" to the ball has been quite effective for professionals like Gary Player and Isao Aoki. Mastering this style takes a sensitive touch developed by countless hours of practice and is not strongly recommended for most teaching/learning situations.

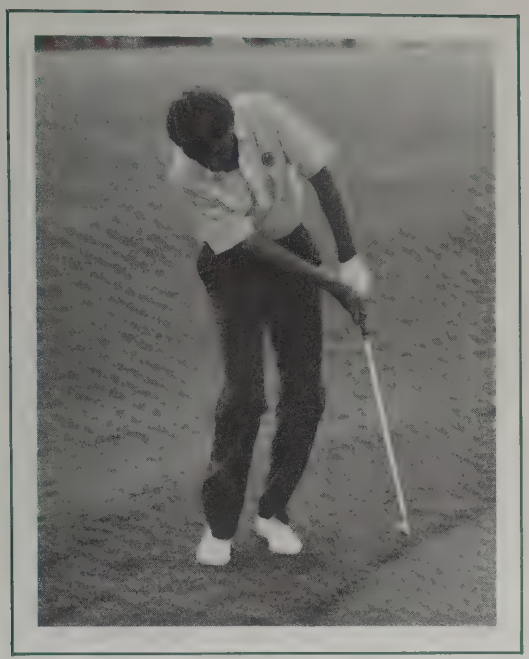
Illus 9-14
Select a wedge for the student, create a hurdle about a foot off the ground and ask the student to strike the ball on the face so it goes under the hurdle. This will encourage him/her to make a descending stroke, getting the clubface on the ball and actually causing the ball to go over the hurdle.

Controlling Distance for the Chip and Pitch

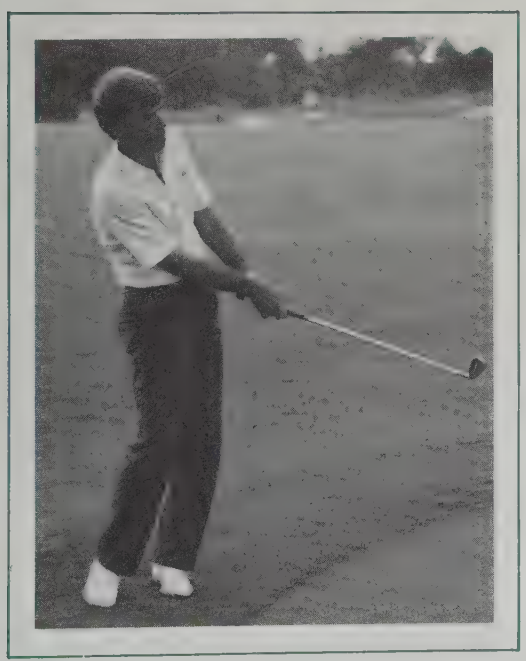
Distance control on short shots will be determined largely by clubhead speed, which in turn is influenced mostly by the length of the backswing. The longer the swing, the greater the potential speed of the clubhead and the longer the resultant shot. Have the student vary the backswing length to see the difference it makes in the distance the ball travels. He should strive for a consistent, accelerating, but unhurried, pace.

When the practice routine produces solid contact and good results, add the requirement for the student to complete a routine before each stroke. The routine could include five steps:

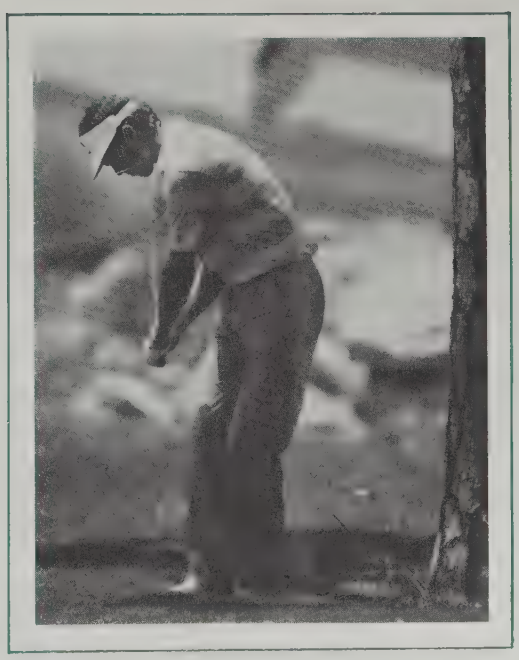
1. *Survey* — check the lie, the terrain, the conditions.
2. *Visualize* — see the shot and result.
3. *Rehearse* — make practice swings or rehearse mentally, or do both, until the correct feel is established.
4. *Execute* — produce the swing that was rehearsed. (Illus 9-17)
5. *Evaluate* — if the shot was good, put it in your memory bank; if bad, make a correct practice swing.



Illus 9-15
Blocking the face by letting the left elbow bend and pulling slightly inward is one method to resist left wrist breakdown.



Illus 9-16
A body-style chip or pitch where the arms and hands stay passive and the shot is made with more emphasis on the body turning to face the target.



Illus 9-17
Once the mind is made up and the feel is there, trust the feel and execute as PGA Champion Bob Tway is doing.
Photo by Jeff McBride

The Essentials

There are a variety of styles that one could use to accomplish a successful pitch or chip. But there are only a few essentials which command universally strong support. Let's examine them:

1. *Shorten down on the grip for greater control.*
The clubs used for chipping and pitching are not really designed specifically for these two purposes. They are made for the full swing. We only "adapt" them for the shorter shots. The adaptation process is a shortened grip position also called "choking down." The player should move the hands down the shaft to about the hand height that would be taken on a standard putter. Most players go about halfway down the grip on chips; some go even lower. Only a few Tour players chip or pitch from a full grip length position.

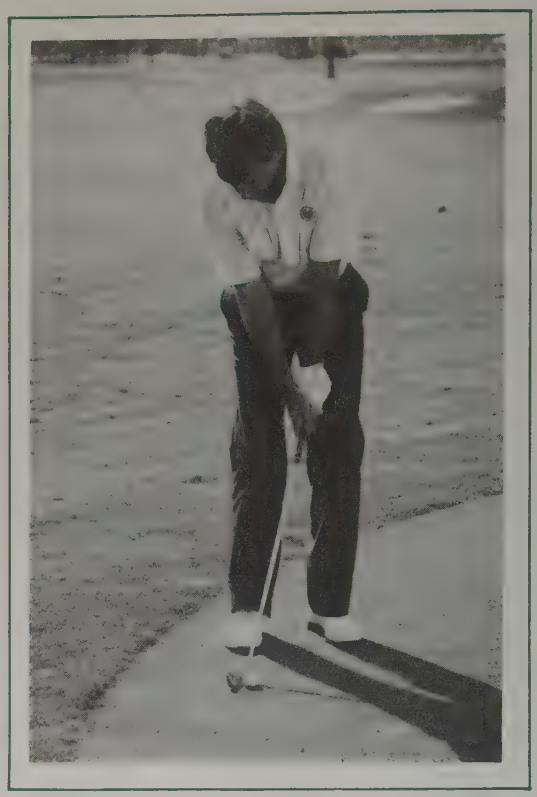
2. *Grip pressure may be firm or light but it is never tight.*
Tightness destroys touch and touch is necessary to play well around the greens. Use a firm grip with no wrist break for the straight-forward chip of short and medium length. This style is mechanically simple and minimizes error. The firm one-lever-type shot can also be used for short pitches when a soft, dead-ball landing is desired. A firmer grip slows clubhead speed, a lighter grip encourages more clubhead speed.

   Where a greater swing length is needed, for an 80 ft. chip or a long or high pitch, the hands need to lighten their pressure enough to allow for wrist cock. This does add another movement which requires timing. With practice, however, this hand motion provides the player with a better feel for distance. The student should first develop a good, firm, one-lever technique before attempting to add the second lever.

3. *The feet and hips are open to the target.* (f 9-4)
The best position from which to toss a ball underhanded to a cup on the green would be to stand facing it. It's best because the underarm swing is on the target line through the whole motion and aiming is simpler when one faces more to the target. Opening the hips and feet for use in a chip and pitch; a) makes it easier to see and swing to the target, b) causes the backswing to be more on the target line rather than inside, and c) restricts the backswing length which provides for better control.

4. *The stance is narrower than in a full shot.*
By narrowing the stance (bringing the feet closer together) the player can establish a predominance of weight on the left foot. This left-side focus helps the player avoid overshifting to the right side. A wider stance is used when more body movement for a more forceful or a more level swing is desired.

5. *The ball is played in the center of the stance for normal chips and pitches.* (f 9-5)
For the standard pitch and chip this is solid, simple advice. Obviously, a variation in the lie or the type of shot desired could require an adjustment. For example, if the player finds the ball on a bare spot with little or no grass underneath (Illus 9-18)



Illus 9-18
From a tight or bare lie (simulated on the practice green) the ball is played farther back in the stance.

f 9-4 *The* shoulders *remain more parallel to the target line than the feet and hips which are open, unless the player is trying to cut the shot to make it stop quickly.*

f 9-5 *Players can play the ball more forward of center but should compensate by leaning more to the left to get their body centerline in correct relation to the ball's position.*

Illus 9-19
A basic principle: Moving the grip back adds loft.

Illus 9-20
Moving the grip forward reduces it.

the ball is moved back in the stance. This adjustment advances the grip farther in front of the head of the club, causing a steeper angle of descent and giving the clubface a better chance to hit the ball before striking the ground. With a cushion of grass beneath the ball this adjustment is not necessary. In fact, if the ball is sitting high up in the grass the player should adjust by moving the swing center more to the right to level the angle of approach and reduce the descent.

When a higher-than-normal trajectory pitch shot is desired, the ball is positioned more forward in the stance. This moves the hands back in relation to the clubhead and adds loft to the face. (Illus 9-19) For a lower shot, the procedure is reversed. (Illus 9-20)

6. *A vertical line drawn down the center of the body, splitting it in half, would fall a couple of inches to the left of the ball on a standard chip and fall directly on the ball with a standard pitch.*
   Leaning the body encourages the hands and arms to angle in the same direction. By leaning the body left for a chip shot so the centerline is approximately two inches ahead of the ball, a natural pendulum arm swing from the shoulders with no hand action will produce a slight and desirable descending arc. In the pitch, where more height is desirable, the centerline of the body can fall right on the ball or can even be slightly behind, assuming a good lie. This moves the hands slightly back, adding loft to the clubface. Again, make adjustments when the lie is not normal or a particular trajectory is desired.

7. *The arms hang comfortably from the shoulders.*
   The arm hang is straightforward and simple, no reaching, no crowding. The hands will hang about one fist width from the left thigh. If the arms already hang extended in the address, they won't extend farther during the swing, a fault which could cause hitting the ground behind the ball. It is acceptable, however, to chip and pitch with bent arms at address, providing they are kept that way and not allowed to extend during the swing.

8. *The small shots around the green require positive acceleration to and through the ball.*
   Premature deceleration of the left arm is a shot killer in the short game. One major cause of deceleration is the ball itself. It acts as a psychological barrier for the player, something to swing the club *to* rather than swing the club *through*. When the left arm slows or decelerates, the clubhead strikes the ground before reaching the ball. Arm acceleration must continue though the ball.

Additional Observations on Chipping & Pitching

1. If positive acceleration is important in chipping and pitching then a backswing that is a "bit too short" is better than one a "bit too long."
2. Players may go through three stages developing their technique for chipping and pitching.
   a. Beginner level — firm grip pressure — no perceptible wrist break.
   b. Intermediate level — firm grip pressure, but allowing a little wrist break to add touch.
   c. Advanced level — light, soft hands for touch shots when needed.
3. The more touch and judgment a short shot calls for, the more visualization and physical rehearsal is necessary.
4. Students will need work on reading the greens for chipping and pitching to visualize what happens to the ball once it's on the ground.
5. After visualizing the shot and rehearsing, execute! Don't stand over the ball "too long." "Feel" has a very short retention time. Tom Watson hit his famous "in the cup" pitch on #17 at Pebble Beach three seconds after he felt it.
6. Is it more advantageous to use one club and vary the swing or use one swing and vary the club? Generally, it is easier to use one swing and vary the club. But, if a person gets very adept with a single club, he should use it whenever it will produce the desired result. Familiarity with and confidence in the club means a lot.
7. An alternative to the single club versus varied club selection debate is to compromise. The one-clubber could use a sand wedge to pitch and an eight iron to chip. The varied-club player can simplify his choices by using every other club, i.e., six iron, eight iron, pitching wedge and sand wedge for his chipping and pitching arsenal. Of course, using odd-numbered clubs instead of even is just as feasible. (Illus 9-21)
8. The more upright the address and swing, the higher the shot's loft. A flatter address and swing produces a lower trajectory.
9. Putting the left-hand grip in an open-faced position (weakening) helps prevent rotation of the blade in the chip and pitch, softens the shot and helps keep the left wrist and back of the left hand from breaking down before impact.
10. When pitching or chipping to the green, select a spot at least three feet beyond the fringe to land the ball, thus allowing for some margin of error.
11. A ball sitting well in the grass will generally come out softer than a ball sitting tightly which may come out "hot." This is partially a result of set-up. We tend to deloft the clubface by moving the hands ahead with the tighter lie situation, whereas we add loft as the hands move back closer to the center with the better lie.

"You should never release your wrists as you go through impact. Hold them firm right into the finish."

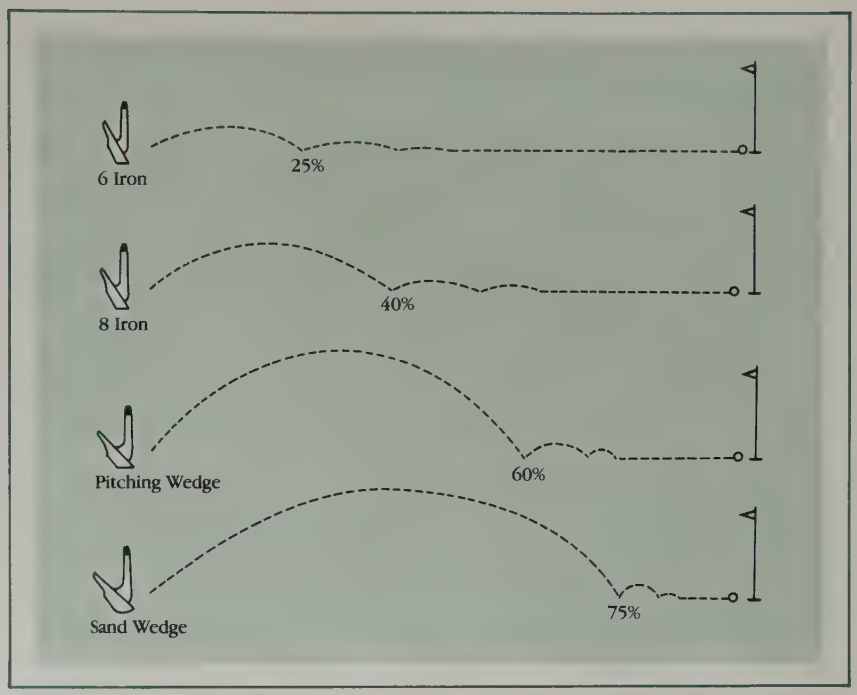
Ken Venturi

"I recommend that you weaken your left hand (open-face grip) on the club so that your palms are in a facing position. This keeps the back of your hand and the clubface always facing the target."

Byron Nelson

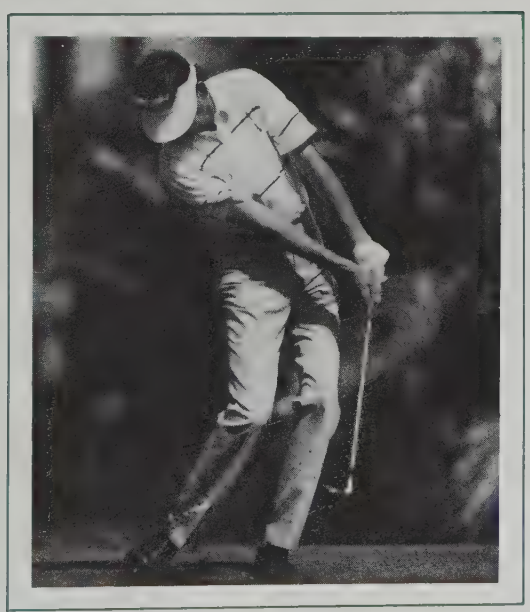
"I would say that 90 percent of golfers have already uncocked their wrists before they reach the ball. This early hit accounts for most of the fat (chunked), topped and misdirected short shots that you see."

Jerry Barber



Illus 9-21
One system that simplifies club selection is to use only the even-numbered clubs and select the appropriate one according to the amount of carry needed and run allowed. Note: Estimates of carry and roll will vary by a player's style.

12. The difference a ball will roll when chipping on a *medium speed green* with a #7 iron going slightly uphill vs. slightly downhill is 10-12 feet. It is much farther on a fast green, so get your student to recognize this possibility before playing the shot.
13. The length of the backswing should be matched by the length of the follow-through on a normal chip or pitch.
14. Soft, high pitch shots will usually be made with a slower tempo. Knockdown pitches, which employ a great deal of backspin, have a faster tempo and more hand action.
15. The center of gravity in the body on chips and pitches stays almost constant. Shifting laterally to the right foot in the backswing is extremely dangerous and results in inconsistency.
16. The statement, "The left hand never stops moving to the target," although technically not totally accurate (it does obviously stop at some point in the follow-through), is a useful, teachable thought for chipping and pitching. (Illus 9-22)



Illus 9-22
As long as the left hand stays ahead of the right, the left wrist will remain flat.

If a player likes the simplicity of using a stroke similar to the putting stroke for chipping, he may wish to try another closely related technique.

Off-Green Putt Style — Off-green putting with a chipping club is a useful technique for some players. It is quite simply a putt from a chipping set-up. The club is held almost vertically so the grip is more across the palms than normal. (Illus 9-23) This closer-to-vertical set-up discourages clubface rotation and helps keep the club on-line. Because the club is now held more vertically, it may rest with its heel off the ground when soled. The hands and grip are still inclined toward the target, ahead of the clubhead. The arms may be somewhat bent at the elbows as in a putting stroke. A firm-wristed pendulum stroke — again, much like a putting stroke — is used to make the shot.

Cut shot — For the higher-handicap player, whose wedge shots have the trajectory of a seven iron, learning a high shot that lands softly on the green is like getting a cherished toy for Christmas. The high-handicap low-trajectory player usually has a strong grip at address and a delofted clubface from an exaggerated hands-forward position. *Without* a grip change the student can get at least normal trajectory by opening his stance and opening the blade. To produce a cut shot, have him aim left *first,* then open the face of the club *before* taking the grip. The swing is made with "hands and arms" on the backswing and the feeling of "arms and body only" on the forward swing. The release (to square the face) is automatic when the correct grip pressure is employed. It doesn't need more help from the hands. The swing path should parallel the body's alignment while the clubface sends the ball toward the right in the direction of the target. The most difficult part of the cut shot for the player new to it, is finding the correct ball position and trusting the feeling of the "new" longer swing for that distance.

Lob Shot — The lob shot is a high, soft shot played primarily with a long, slow-paced arm swing and very little hand action. It is made from a forward-ball position so the hands are hanging toward the middle of the body rather than ahead toward the left thigh. Make sure the student keeps a firm grip when playing the shot.

Cut-lob — Combines the cut and lob shot; ball forward, open clubface and stance, arm swing, dead-handed motion.

Chip-and-Run or Pitch-and-Run — Faced with a steep bank in front of the player and the flag just beyond, the chip/pitch-and-run is the shot. Help your student select what part of the bank he'll use as the target. If the grass is quite heavy the shot will need to land high on the hill because more than one bounce will kill it in the grass. If the grass on the bank is sparse or trampled down, a low trajectory shot followed by a couple of bounces will be required, using a less-lofted club to get the job done. Besides selecting the correct club, the player must judge how much momentum the bank will take off the shot so he can determine how hard to swing. If the shot doesn't require much speed, a firm-wristed stroke could suffice. If the shot needs more force, a cocking of the wrists would be in order.

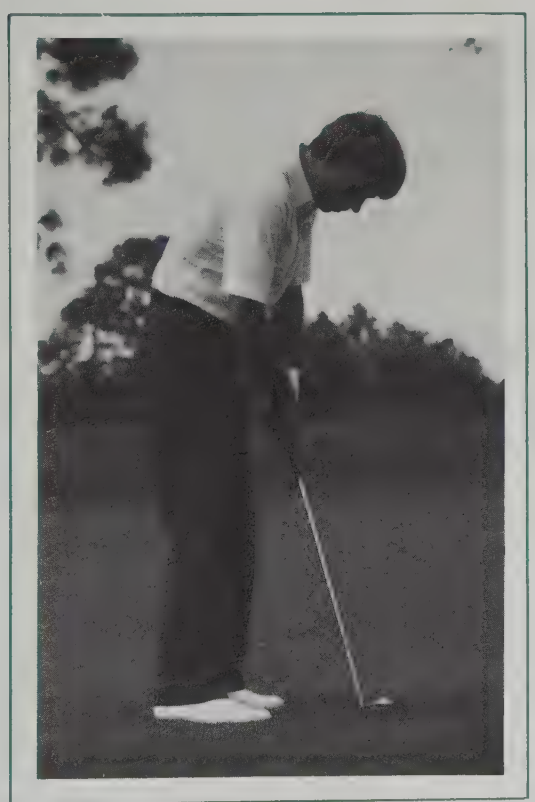
"Today you can drive up to the average country club practice area and see about three dinosaurs for every golfer who's out there working on pitch-and-run shots."
Lee Trevino

Flop Shot — A wristy pitch is used when a very soft landing is needed. The wrists are cocked abruptly in the backswing, encouraging a steep descent. The club drops to the ball and the left wrist breaks downward to add loft to the club as it slides underneath the ball. It can be a risky shot, requiring a decent lie and considerable touch but it is very useful once mastered.

A Useful Conclusion

If one could characterize the essential difference in the practice habits between a touring professional and an average club player, it would be in the allocation of time devoted to the long game versus the short game. The golfer who plays for a living, the professional, devotes a considerably higher percentage of practice time to the short game than the club player. And that is one of the fundamental reasons that professionals score better. Chipping and pitching is never taken lightly by the serious player.

"Basically I chip the way I putt... The most important factor in making the chipping stroke, I believe, is keeping both wrists fixed."
Lanny Wadkins



Illus 9-23
With an off-green putting style chip shot, the shaft runs more vertically so the club is soled on the toe.

CHAPTER 10

Bunker Play

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Bunker Play

One golf shot which strikes fear into the hearts of some otherwise brave people is the bunker shot. (f 10-1) Nevertheless, it has been said by no less a champion than five-time PGA winner Walter Hagen that, "The bunker shot is the easiest shot in golf — you don't even have to hit the ball." But if the player lacks the knowledge and skill for execution of this shot, apprehension prevails. Combine poor technique with a lack of confidence and failure is imminent. However, those who understand the principles of bunker play (including the design of the sand wedge) can, with a modest amount of practice, become quite comfortable in playing the shot.

f 10-1 Bunker shot, not trap shot. The word "trap" is not in the rule book.

There are a great variety of bunker styles, yet most employ several of the same principles. If the principles are identified and communicated to the pupil in a simple format, followed by application of these principles with drills and exercises which teach good technique, the development of a proficient bunker player is well underway.

Historical

The early "links land" of the Scots was ideally suited for golf. It *linked* the mainland to the sea, having a sandy base and providing no shortage of natural bunkers. The ever-present wind, with time, would hollow out what may have started as resting places for rabbits or sheep but were transformed into gaping holes which became hazards on the course. Stories which describe bunkers growing from a large divot not replaced are a bit unbelievable even with the erosion potential on the windy links, but nonetheless do suggest how "natural bunkers" were created. Some of those bunkers were so forbidding, they were given their own descriptive names, like "Hell Bunker" at St. Andrews, "The Crater" at Portrush, "The Graves" at Musselburgh and "Sandhills" at Troon. (Illus 10-1) More recently, the awesome bunker at the 16th of PGA West has been called "Pete's Fault," referring both to the diabolical design of architect Pete Dye and the nearness of that man-made hazard to the geological San Andreas fault.

Illus 10-1
An example of the treacherous bunkers that are mighty enough to earn a fearsome name.

from Ind Coope Book of Golf

Illus 10-2
The awesome bunker at the 16th of PGA West's Stadium Course. It has a 19 ft. elevation to clear.
Photo courtesy of PGA West

(Illus 10-2) Most modern bunker designs, for practical maintenance purposes, are confined to a design that will accommodate a bunker-raking machine. A raking machine can't be driven into a steep pot bunker, which means one either has to hand maintain it or not maintain it. Lack of maintenance is frowned on in this country, while hand labor is very expensive. Therefore, maintenance budgets partially dictate our golf course design features, including bunkers. For this reason, the average player today encounters mostly flat or saucer-type bunkers. Therefore, basic bunker instruction, for the most part, should relate to playing under those conditions.

Equipment

Prior to 1931, a golfer facing a greenside bunker shot with the ball sitting on top of the sand had a formidable challenge. It took great nerve and skill to cut the sand out from beneath the ball and land it on the green with only a sharp-bladed niblick to accomplish the task. But what happened in the winter of 1931 at New Port Richey, Florida, would change that. Gene Sarazen came up with a clever idea. Aware of his upcoming summer trip to the British Open and the prospect of facing a multitude of bunkers, Sarazen was concerned about his bunker play. One day while taking a flying lesson, he noticed that in order to make the tail portion of the plane rise the elevator on the horizonal part of the tail needed to be turned downward. This meant that the trailing edge of the elevator was lower than the leading edge. The air resistance against this surface forced the tail up. Could the same principle work on a golf club so the club wouldn't dig? After the lesson, Sarazen went to a machine shop and had solder put on the sole of several niblicks. After hundreds of trial shots accompanied by numerous adjustments to weighting and loft, Sarazen was satisfied that he had a workable solution to the sand shot. He quietly practiced with it at the 1932 British Open, hiding the head of the club by placing it upside down in his bag and then taking the club to his hotel room each evening. Sarazen won the British and the U.S. Opens that year with excellent bunker play contributing to the wins. The secret was out. A new club had been born, the bounce sole sand wedge.

Understanding The Concept

Sarazen's observations were accurate. The principle that works in the air with airplanes also works in water with boats and in sand with golf clubs. A hydrofoil on a boat such as the hovercraft that flies the English Channel causes the boat to rise in the air when the foil's trailing edge is turned downward to resist the water. Whether you are cutting air, water or sand, the principle is the same. On a golf club, the fixed design component featuring this reversal of the club-head's sole which provides the bounce is called "inversion." On all other irons in the bag, the leading edge of the flange is lower than the trailing edge. These iron clubs are built to penetrate or dig first before leveling. Not so in a properly designed sand club. A sand iron is designed to glide, skid, or bounce rather than dig. The sole or flange has three important characteristics which make it work: 1) sole inversion, 2) camber, and 3) breadth. (Illus 10-3) The wide flange, inverted sole, and increased camber are all resistive to digging. Additionally, the sand wedge has more loft. Normally the loft angle is from 56 to 60 degrees compared to the pitching wedge at 50 to 54 degrees. The sand iron is heavier than any of the other irons by four to eight swingweight points. Also the toe-to-heel camber of most sand irons gives an oval-shaped look to the face and helps prevent the toe or heel from catching, thus diverting the intended face direction. What makes one sand wedge effective under certain conditions also can cause it to be awkward in others. Since using the sand wedge to pitch from grass is also desirable, it's important for a player to find the right combination of club characteristics of inversion, width, sole camber, loft, weight, face progression and face design to suit these different uses. The correct choice will be affected by the design of the bunkers the player regularly faces, the nature of the sand, the type of grass he plays on, the firmness of the ground and the player's technique.

Illus 10-3
Two sand irons displaying the elemental characteristic of sole inversion. But each having slight differences in loft, camber, sole breadth and weight.

Teaching The Greenside Bunker Shot

It doesn't take an extensive review of literature or observations of various good players' styles to discover that some very effective results are coming from a wide variety of bunker shot styles. One sees, hears or reads about the following preferences: "play down the flight line" — "play across the line" — "use an earlier wrist cock" — "use your regular pitch swing wrist cock" — "set your weight to the left" — "set your weight to the right" — "hit one inch behind the ball" — "hit six inches behind the ball" — "play the ball off your left heel" — "play the ball in the middle" — "use a steeper 'V-shaped' swing" — "use a normal 'U-shaped' swing" — "use the same length backswing for all sand shots" — "vary the length of backswing to the length of the shot" — "start with the face square and block the finish" — "start with the face open and use a normal release." The list could continue. What is the best style to teach? That is a question which one should not attempt to answer until the abilities of the student and the conditions under which he/she normally plays are known. The technique recommended here is probably the easiest, safest, most dependable for the greatest number

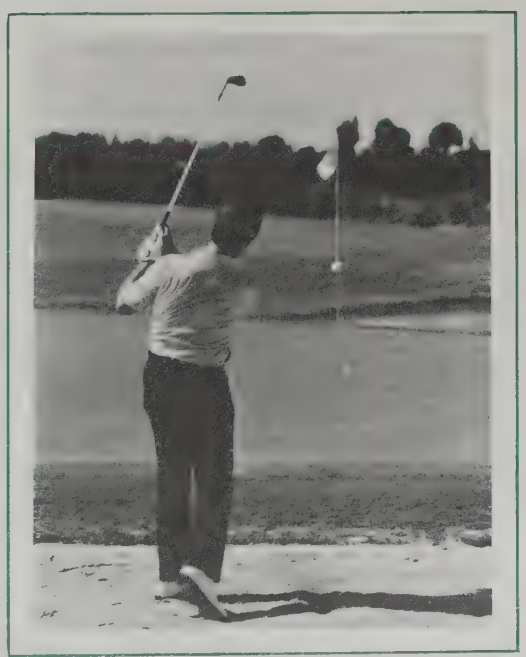
Illus 10-4
Take a slightly open stance to match the slightly open clubface. Play the ball forward, toward the left heel.

Illus 10-5
Strike the sand approximately 2-4 inches behind the ball.

of players. Granted, there have been and will continue to be genius performers in the bunker who use highly individualized styles which they have mastered. But these styles would probably be difficult for the average player to emulate. The techniques which appear to be accepted by a majority of golf's most successful teachers and players are these (for a greenside bunker with the ball sitting up):

1. *Establish a firm footing that will support the swing without slipping, yet will not dig the feet too deeply. Longer shots require a better base.*
2. *Take an open stance to restrict backswing length and to steepen the swing.*
3. *Open the clubface to match the address position.* (Illus 10-4)
4. *Start with the weight favoring the left side at address for the normal shot.*
5. *Swing the club like a full "cut pitch shot," matching the length of the backswing and the follow-through to the force needed for that shot.*
6. *Strike the sand from two to four inches behind the ball, although slightly more or less distance can still be useful.* (Illus 10-5)
7. *Do not let the face close (toe pass the heel) until after impact, if at all.* (Illus 10-6)
8. *Continue to accelerate through the ball to a natural finish.* (Illus 10-7)

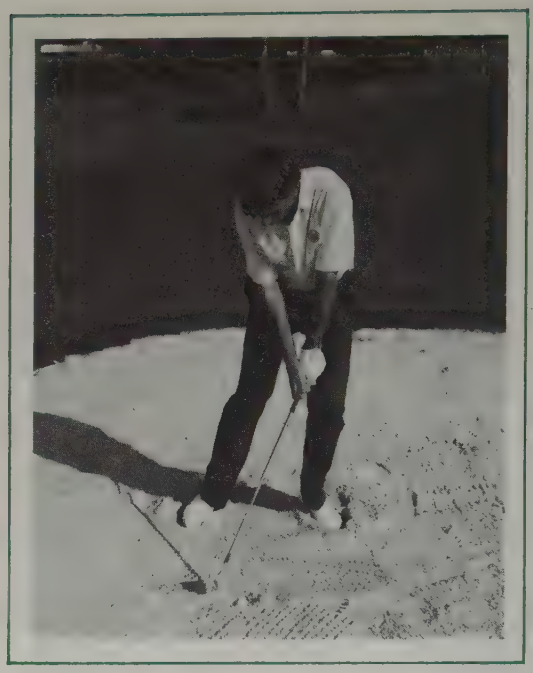
Illus 10-6
Do not let the toe pass the heel of the club until after impact.



Illus 10-7
Accelerate through the ball to a natural finish on the left side. If the student tends to decelerate, teach that the hands should reach shoulder height in the follow-through.

For buried shots —

1. *Play the ball further back in the stance than a normal sand shot to get more penetration with the clubface.*
2. *If the ball is buried deeply, turn the toe in to make a knife-like leading edge for easier entry, or use a pitching wedge for better penetration.* (Illus 10-8)
3. *Accelerate well into impact, providing concussion adequate for the ball to exit the bunker. A follow-through is not necessary, but can be helpful in sustaining force.*
4. *Consider using a pitching wedge or #9 iron for buried shots where a longer distance is required.*



Illus 10-8
For a deeply buried shot penetration is needed, so toe the club in.

A Sample Method

Understand the designs. The pupil should first understand the purpose and design of the club. A chart or diagram illustrating the difference would be useful. In lieu of that, an actual comparison of the action of the student's own #9 iron and sand wedge would suffice. Demonstrating in the bunker the principle of bounce and dig with these two clubs would take the concept from theory into practice. To make the demonstration even more dramatic, acquire or build a sand iron with a particularly bulbous, broadly radiused sole such as an old Sandy Andy. This type of club will not dig; it only bounces. Also have available an old sharp-edged niblick (Illus 10-9) which will only dig. Hit behind the ball with the niblick and the clubhead will dig deeply and abruptly stop, imparting little force to the ball, leaving it in the bunker. Then, with the bounce sole club, hit the sand behind the ball and the club will skip through the sand, throwing the ball easily onto the green.

Next, show how the modern sand wedge will produce this same skipping rather than digging action, as long as the student doesn't improperly use the club. "Improper use" for a ball sitting up would be eliminating the sand wedge's built-in bounce advantage by closing or hooding the face either at address, or during the swing prior to impact. Two sure tip-offs from a player who frequently makes this mistake is a closed-face grip (strong grip), or hands placed well in advance of the clubhead at address.

"The height of a bunker shot will be regulated by one's ability to displace the sand upward...the direction, by one's ability to displace sand toward the target."

Pat Rielly

Demonstrate the basic shot. Show the whole activity first so the pupil can: 1) visualize the fullness of the motion, 2) see the carry-over in form from the swing with other clubs, and 3) watch the reaction of the ball in the air and after it hits the green. If time permits and the occasion calls for it, demonstrating with several wedges that produce different trajectories and action would serve to emphasize that all sand wedges are not the same. This same point could be made orally. The pupil should now have a good concept of the club's design and purpose, plus a picture of the overall shot, and be ready to learn the fundamentals of how it should be performed. State clearly your technique goals for the lesson. They should be few in number and simple. An example might be:

Objectives For A Single Bunker Lesson

a. Set the face slightly open at address.

b. Aim the body line open to offset the face position to produce a steeper swing.

c. Splash sand from the bunker onto the green with a swing path traveling parallel to the body's aim but across the target line.

d. Let the length of the follow-through be at least equal to the length of the backswing.

e. Finish with the weight on the left foot as in other golf shots.

While the objectives of this single lesson are limited, the overall lesson plan for learning this shot will be rather comprehensive. These objectives are listed below. (A sample lesson plan is also included in Appendix 10-A.)

Illus 10-9
The professional explaining how a sharp-bladed club digs and a round-soled club bounces.

Priorities for Bunker Play

1. Understand sand wedge design, what makes it work and how its effectiveness is destroyed if used incorrectly.
2. Be able to read the sand and lie to determine club selection, type of shot, adjustments in set-up and swing.
3. Learn the various adjustments in grip, aim, set-up and swing technique.
4. Experience the distance control factors, i.e., length of swing, pace, blade position, angle of approach and volume of sand.
5. Develop through practice and drill the methods for handling the various situations found in greenside and fairway bunkers.

When teaching the bunker shot, it's a natural time to include information on rules and etiquette, i.e., raking the bunker after the shot, entering the bunker from the appropriate location, understanding the rule when searching for a ball buried in the sand or knowing the penalty for soling the club or brushing sand on the backswing while playing from a bunker, etc. (Illus 10-10)

Targeting the Presentation

The handicap level of the student, his needs, goals, and commitment will shape the level of material presented. A high-handicapper who rarely escapes from the bunker on his initial swing will be given a far more simple presentation than the low-handicap, competitive player seeking technique refinement. Remember, for the vast majority of players a successful bunker shot is "one that gets the ball out"... period. While the principles don't change for teaching the more skilled player, the amount of detail may. Still, follow the formula of selecting a small number of points to get across, state them, demonstrate them, let the student perform. Coach with the aid of verbal image cues, visual aids or drills, but stick with the basic points. Always leave time to review what was covered.

Illus 10-10
Don't let the student leave the bunker without raking. Make etiquette part of the lesson.

Choosing a Style

Illus 10-11
A closed-face grip will make it difficult to execute a "splash" sand shot because the toe will tend to lead and dig.

Preferences in bunker style among good players can vary drastically. So trying to choose a simple method of bunker play for everyone has its limits. One very simple approach is to teach this shot in a way similar to a normal pitch shot from grass, except to move the ball forward in the stance so the alignment is pointed left of the flag, the backswing becomes steeper and the club enters behind rather than on the ball. Former PGA Champion and short game expert Paul Runyan once described the approach to bunker play as simply "nothing more than a controlled fat shot." Yet, Runyan and most players and teachers agree that bunker shot consistency improves when adjustments are made to the normal pitch swing. Let's look at some of those adjustments.

Grip

For a normal "splash type" bunker shot, the *placement* of the hands should be at the same length on the shaft as that used for a full sand wedge shot. *Positioning the hands is not as straightforward.*

To encourage a soft bunker shot and to protect from letting the toe of the club pass the heel and dig into the sand, some players alter the normal grip by rotating the left hand counterclockwise (toward left shoulder) to an "open-face" *position* before placing it on the grip. This one knuckle grip with the left thumb straight down the shaft and the right hand palm in a matching position, will literally guarantee that the face will not be closed at impact. (Illus 10-11) A similar effect is achieved if the face is set markedly open prior to placing the hands on the club in their normal grip position. With either adjustment, the objective is to keep the toe from passing the heel prematurely. If the toe is allowed to pass the heel before contacting the sand, the bounce is lost, replaced by a dig.

Grip *pressure* will reflect and largely control whether the player is basically an arms and body player, or arms and hands player. A firm grip encourages less hand activity; a light grip, more. The advocates of a firm grip claim this style produces more consistent results and greater precision. The light grip players opt for their method for better touch or feel. The choice is definitely one of preference, but more of the great players today emphasize the arm swing rather than hand action.

When the clubface is opened to compensate for the aim to the left, more inversion is created, giving increased bounce to the sole. This reduces the chance of the player digging the club into the sand too deeply and stopping the clubhead so that too little energy is transferred to the ball to get it out of the bunker.

Aim

There are two definite schools of thought on the principle of AIM. One would have the player align almost square to the target line with the face of the sand wedge square and playing down the line to the target on all shots. This style has the shape and direction of the swing which matches a regular pitch shot. (Illus 10-12) The second would make more adjustments, aiming left of the target line with everything but the clubface, then making the swing parallel to the body line, left of the target. (Illus 10-13) The open clubface, however, would send the ball toward the target with a bit of slice spin.

Both methods are effective. If the pupil tends to close the face at impact and dig excessively, then the "aim left, open face, steep, swing across-the-target-line method" would seem to be effective. This is the more widely taught technique since it helps alleviate the devastating error of penetrating the sand too deeply and leaving the ball in the bunker. Too much descent however, can also be a problem if the angle of approach is so severe that the club simply buries, giving inadequate force to the ball and leaving it in the bunker. A sharply descending approach can also be dangerous in coarse, packed or firm-based sand, in that it can bounce the club too abruptly off the sand's surface, rather than sliding it under the ball, which may cause the ball to be bladed over the green.

There is a difference of opinion as to what causes the ball's direction leaving the sand. Is it the swing path or the clubface which determines the ball's direction? Swing path advocates claim that since the clubface does not touch the ball, the former does not affect the direction the ball travels. Clubface direction advocates feel that wherever the face is aiming at impact will be the direction the ball travels. The correct answer is the one that applies for every golf shot. *Direction is the outcome of the combination of path and face.* However, since this is not a high velocity shot (the sand slows the clubhead, cushioning the force) the ball direction will be more influenced by face position than path. If you close the clubface and hit the sand, the particles will fly left (the law of rebound); square the face and they'll go forward; open the face and they'll go right. The influence of face position holds true for the ball. Watch the direction the sand is displaced to know where the ball will go.

By opening the stance and aiming left the player steepens the angle of approach which helps to insure he'll hit the sand with enough descent to get the blade under the ball. Players who swing from sharply inside the flight line approach the ball on a shallower plane, increasing the possibility of the club's leading edge glancing into the middle of the ball rather than cutting the sand from beneath it.

When the clubface is opened to compensate for the aim to the left, more inversion is created, giving increased bounce to the sole. This reduces the chance of the player digging the club into the sand too deeply and stopping the clubhead so that too little energy is transferred to the ball to get it out of the bunker.

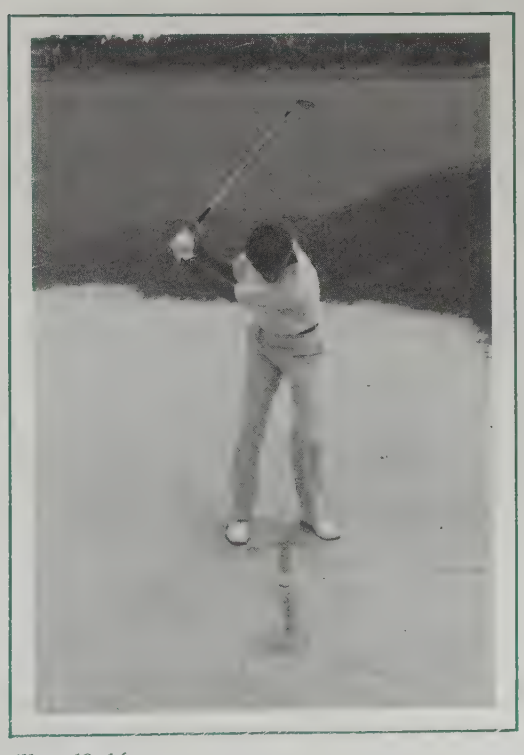
Illus 10-12
A setup position which is the same as the player uses for a normal pitch where the player swings down the line to the target.

Set-Up

Firm footing is particularly helpful if the player is using considerable force in the swing. If the swing base falters and the feet move, the shot will most likely be misplayed. Therefore, a first step in the set-up is to work the feet into the sand. This puts the golfer's feet slightly lower than the ball, at about the level where the clubhead easily passes beneath the ball.

Most players agree that the ball placement should be forward, in line with the instep of the left foot. But what really matters is where the ball should be placed in relation to the vertical centerline of the body. Players who set their weight on the right side at address tend to center the ball between their feet. (Illus 10-14) Those who favor their weight to the left side will have the ball more forward — approximately four to six inches left of the vertical centerline. But again, ball placement can also depend on how much lateral weight shift accompanies the swing. Those who favor setting left, besides having the ball forward, will tend to have a steeper angle of approach, will hit closer to the ball and prefer broad-soled, bounce-type sand wedges. A balanced set-up position or one more to the right, will encourage the player to take a longer, thinner cut of sand, with a shallower swing. The player using this style will generally select a narrower-flanged sand iron.

Illus 10-13
An open-faced, open stance setup where the player swings across the line to the left of the target.



Illus 10-14
If the player's setup is a bit more to the right or his release early, the ball must be farther back than the left heel.

Swing

From the discussion thus far we know that grip, aim and the set-up will influence the swing style and that swing styles differ among players. But swing shape will also differ. Some players prefer an early, pronounced wrist cock to get steepness in what has come to be described as a "V" shaped swing. Those who prefer to swing the club as they would in a normal pitch shot could refer to their swing pattern as a more "U" shaped swing. The steeper "V" shape pops the ball up higher, softer and shorter. It's "U" shape counterpart produces a lower trajectory and equal distance with less effort. Picture making the "U" swing as standing in a large saucer of sand, the "V" swing in a large teacup. These swing shapes are also one type of distance control which will be discussed in a moment.

"Do not flip the wrists, the ball should come out slowly."

Gene Sarazen

As in the full pitch shot swing, there are players who play a bunker shot using a lot of body with firm hands and wrists as their style. Others employ a looser grip pressure with more wrist action and an aggressive arm swing. Strength has something to do with style choice. It takes strength to be consistently firm. So one usually associates firmness of grip pressure and the use of more body action with physical strength and a looser arm swing style with a less muscular player. But keep in mind there are many exceptions to this general observation.

Controlling Distance

There are five ways to control distance in the bunker shot.

1. *Angle of Approach* — Use a steep angle for short distances; use a shallow angle for longer distances.
2. *Blade Position* — Add loft by opening or laying back the face for short distances; reduce loft by closing or hooding for longer distances. (Note: As in shots from grass, ball position also influences loft; back for less, forward for more.)
3. *Backswing length and pace* — A long backswing has the potential for creating more force than a short swing and, therefore, will generally send the ball farther. The pace, however, also affects that result. A player could use a slow pace with a long backswing or a fast pace with a short backswing and hit the ball as far or farther with the short swing than the long one. So, pace and length of backswing need to be blended.

4. *Amount of Sand* — Shorter shots result from taking more sand by hitting farther behind the ball (four to six inches) and longer shots result from hitting closer to the ball (one to three inches) taking less sand. Keep in mind, however, that hitting close to the ball, though sending the ball farther, will spin it more and make it stop quicker on the landing area.

5. *Length of Follow-Through* — A short follow-through is generally the result of reduced speed at impact, whereas a long follow-through usually means more speed and greater distance. Keep the backswing about the same length for both types of follow-through. (Illus 10-15)

Frequently, a player will use a combination of two or more of these control styles to play a specialty shot from a difficult position.

Illus 10-15
PGA Champion Lanny Wadkins lets the follow-through length match his backswing length.

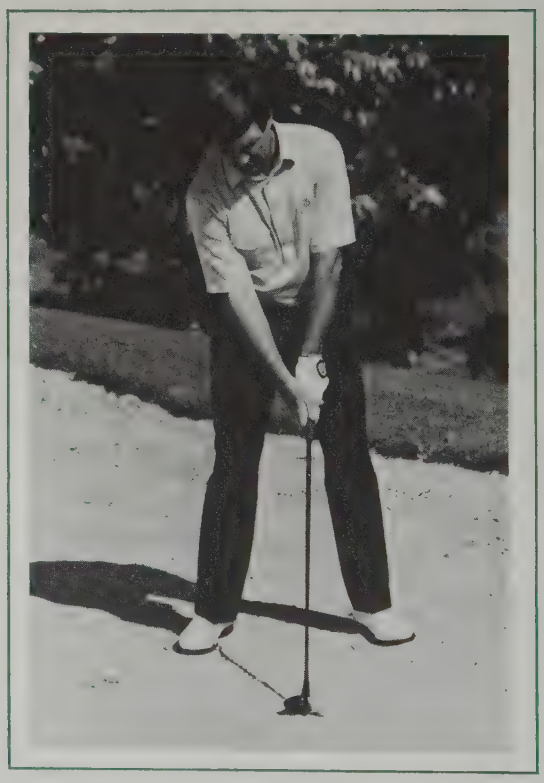
Photo by Stephen Szurlej

Fairway Bunker Shots

When the ball is in a fairway bunker and the objective is to get greater distance, a fundamental principle changes. Whereas in the normal "greenside bunker" shot, a player should always contact the sand first, *in a fairway bunker he should always contact the ball first.* Most of the adjustments are related to this objective.

Once a player has selected a club with adequate loft to safely clear the lip of the fairway bunker he should then make the following adjustments:

1. First, check the lie. A good lie will allow a normal swing with few adjustments. A medium lie may require more descent, a poor lie may require a "pitch out" to the fairway. (Illus 10-16)
2. Establish solid footing, especially with the right foot.
3. Choke down on the club the same number of inches the feet have been worked into the sand.
4. Position the ball more toward the center of the stance.
5. Place the hands slightly ahead of the ball as with a normal shot, not sitting too much in the knees, even playing slightly "stiff-legged."
6. Sweep the ball from the sand as though it were resting on a sheet of glass. It may help to visualize making contact with the ball "below its equator, but above the sand" as Bel Aire professional Eddie Merrins suggests. If the lie isn't good and more descent is needed, open the clubface slightly, aim left and use one more club. This will help the heel to lead, encouraging bounce, rather than the toe to lead, and causing dig.
7. Look not at a spot behind the ball as some do in a greenside bunker, but look rather at the front edge of the ball, or just slightly ahead of it, to help assure ball contact is made before sand contact.



Illus 10-16
In the fairway bunker, the player needs a perfect lie to attempt a wood. Then the ball should be played slightly back and the grip shortened down on the club.

Psychology in the Bunker

"If I am one of the greats, it's for one simple reason; no bunker shot has ever scared me and none ever will...Approach every bunker shot with the feeling you are going to hole it."
Gary Player

Probably the hardest thing to overcome is the student's fear of the bunker shot. This fear is a result of past failures, a lack of confidence and feeling of uncertainty. The best way to have the student avoid that frame of mind is to see that he understands the principles behind executing the shot and practices until he has enough confidence in a method that he knows will get the ball out. Visualizing a successful result is one of the important steps in playing the shot. Fear of making a mistake produces muscular tension. Tension produces shortening of muscle fibre or tightening up. When one tightens up, he inhibits the swing and reduces the chance of making a successful shot. Thinking negatively and seeing poor mental pictures can destroy one's ability to make a good swing in the bunker. A player must stay loose and relaxed, and that comes only when he knows he can successfully execute the shot.

One of the touring professionals with exceptional confidence in the bunker has been Gary Player. Several years ago, he was warming up before a tournament. While walking by the practice bunker he was seen by Australian Bruce Devlin. Gary Player had the reputation for tireless practice in the bunker and for being one of the world's best at the shot. Devlin saw the opportunity to pick up a tip. He said, "Gary, come here a minute. Give me a rundown on what you do in the bunker."

Gary said, "Let me have your club." He took Bruce's club and proceeded. "Well, here's what I do. I dig my feet in first, take a bit of an open stance; I choke the club down; lean into it with the weight on my left side; open the face up just a little, and then I swing and cut it out."

Bruce said, "OK, let's see it." Gary went through the routine, swung the club — and poof — two skips, boom, right in the hole.

He said, "That's how I do it," and handed the club back.

In the meantime, Devlin was saying to himself, "This lucky stiff — there's no guy that good." So, he countered, "Just go through that once more for me again."

"All right," said Player. "Choke the club down a little, get yourself settled in the sand, lean into it to the left, open the face just a little, and do like this." And he hit another shot which floated up, took two skips, hit the right edge of the cup and just lipped out. Then Gary looked at Bruce and said, "But you don't want to open the face too much, mate."

Much of a player's success in the bunker depends on confidence. Visualizing good results is one of the tools to create confidence.

Additional Thoughts On Teaching Bunker Play

1. The term "splash" rather than "explosion" is a word which may better describe the preferred swing action when the ball is sitting up on top of the sand. "Dig" is a descriptive word for the swing when the ball is buried.

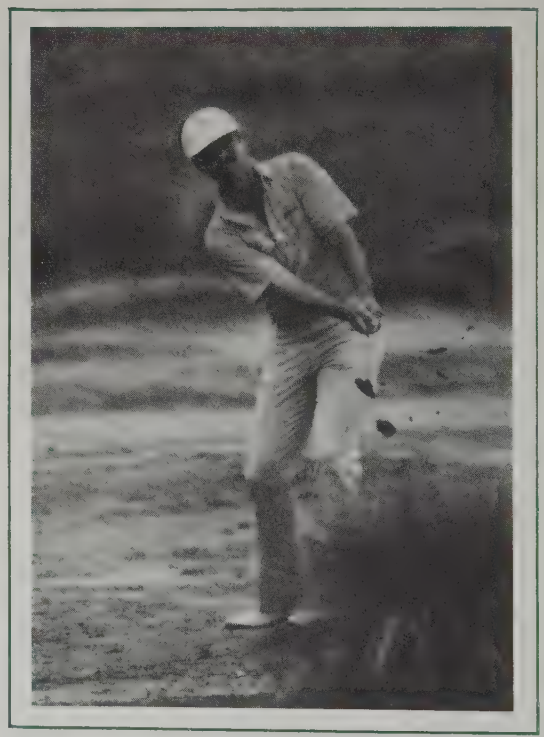
2. Good results from a bunker, like good results on the putting green, depend greatly upon the ability of the player to "read the sand," like "reading the green." The only means within the rules that the player has for reading the sand are his eyes and feet. The feet are the "feelers." Walking to the ball and taking a stance will provide information on sand depth. Sand depth and condition can also be partially determined visually. If the sand is coarse or wet that means it is firmer and will cause more bounce; fluffy and dry sand will cause the club to dig more. Therefore, for firm lies use less bounce from the sole; for soft lies use more bounce.

3. Vary the depth of cut by setting the club's grip-end forward for a deep cut or back for a shallow cut.

4. Chipping from sand is difficult and is not widely taught. Players who do execute this shot play the ball back in the stance and try to keep the swing level and wrists firm.

5. In the follow-through for a bunker swing the player can either hold the arm rotation or release it depending on his set-up. The more open the face in the backswing, the greater the arm and hand release. If the face is square the tendency will be to hold or just "body release." (Illus 10-17)

6. Some of the factors determining the type of shot to be played are: Lie, distance to the flag, sand composition and condition, slope and speed of the green, height of the bunker lip and type of bunker club that is being used. (See Appendix 10-A for a bunker lesson plan.)



Illus 10-17
The follow-through shows some upper body release and less hand and forearm release. U.S. Open winner Scott Simpson demonstrates an effective style.
Photo by Stephen Szurlej

"Correct technique will get you out, but only lots of practice will get you close."
Paul Runyan

7. A visual image to help the player from closing the face prematurely is to picture balancing a glass of water on the clubface, without spilling it, until well into the follow-through.

8. Uneven lies in the bunker are played like those from grass using similar adjustments. For example, align the shoulders parallel to the slope of the ground for uphill or downhill lies. An exception to this is when the slope is severe, i.e., having the ball plugged in the face of an uphill bunker where a parallel-to-the-slope shoulder position would cause the player to fall over. In this case lean into the hill and hit closer to the ball than in a normal sand shot. The vertical bank will still allow plenty of sand between the clubface and ball.

9. A player should learn how far he can hit a sand wedge from a bunker under different sand conditions so that he'll know when the target is out of range and a different club is needed.

10. Fear produces tension, which in turn destroys swing motion. The bunker shot is a natural for causing this psychological reaction, particularly in players who have experienced only occasional success in escaping from a bunker. What is the effect on technique when players execute this shot in a fearful state? They release prematurely, trying to scoop the ball up and catch the sand too far behind the ball with a shallow approach. The clubhead is then allowed to pass their hands too early in the forward swing, resulting in a bladed shot. Or they tighten and decelerate, causing the club to lose its impact force, leaving the ball in the bunker. Eliminating fear will improve results. Confidence will destroy fear. Confidence comes from knowing what one is doing.

Teaching someone to successfully play from a bunker, particularly when that has been their nemesis, is a rewarding experience. What makes it also dramatic is that improvement, in many cases, can come almost instantly by simply changing a pupil's concept and making the correct technique adjustments. When that happens the teacher has won an admirer.

CHAPTER 11

Developing A Teaching Program

And The Qualities Of A Competent Teacher

Developing A Teaching Program And The Qualities Of A Competent Teacher

A teaching program means more than the professional being available for private lessons. What will be described in this chapter goes beyond the traditional private lesson by exploring additional ways to communicate information on playing golf and describing the right setting in which to do this. Of course, each facility must analyze the particular needs and desires of its customers as well as the facility's ability to meet these needs.

Motivation, Market Research and Promotion

For a teacher to have a teaching program he must have students. It all begins by creating within a person the desire to learn golf or to improve upon his/her present skills. So the first step is to motivate. To "turn someone on to golf," it's important to understand why people want to play golf in the first place and what keeps them coming back once they do. Is it the challenge of the game? Getting out-of-doors in a beautiful setting? The desire for companionship, competition, exercise, making new friends or being with old? Is it good for business, socially the "in thing" to do, prescribed by the doctor, suggested by the boss, requested by the husband? It is all these things, and more. Knowing what attracts people to play golf in the first place will be an asset in promoting an interest in the game. One of the public relations statements which the PGA of America has presented is that PGA also stands for "Promoting Golf in America," a most appropriate message because it is contained in the PGA's statement of purpose. What may well be the most important contribution to "promoting golf" is *To Teach People to Play!*

"Golf is the only sport where there are more teachers than players."

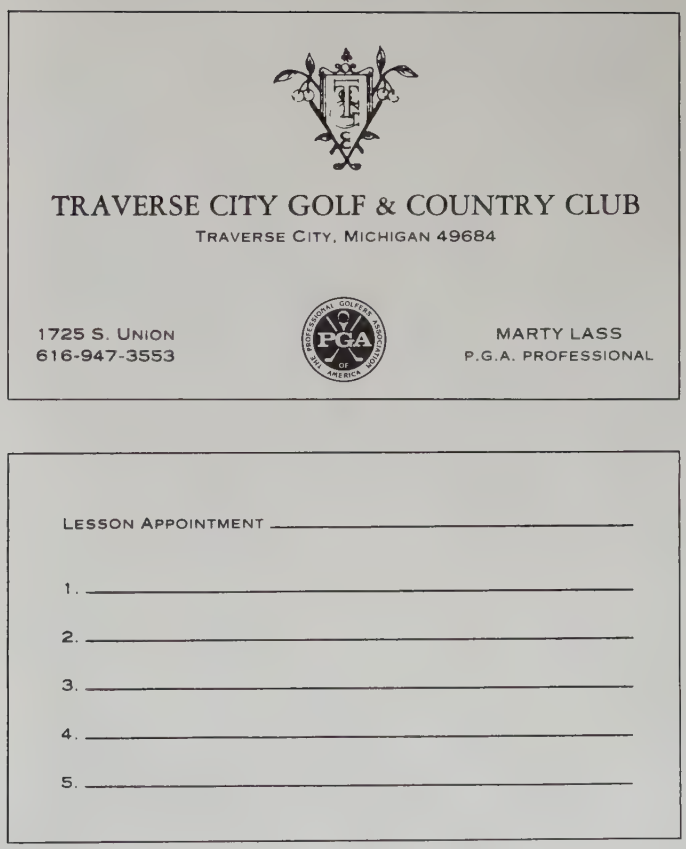
Conrad Rehling

Promotion — Business Cards

Professional people have business cards. Cards provide a good method through which the golf professional can promote himself and his services. Two popular approaches are to use a standard card with just the essentials: name, title, business address, business phone (home if desired), a PGA logo (if a member), and possibly a single-line statement such as "Lessons by appointment," or "Member of the PGA." Another type containing more room for information is a double-size card which folds like a tent or one can use the back side of a single card. Printed on this additional space can be a variety of messages. Examples which have been used are: the professional's philosophy of golf; professional's short biography; services offered and rates; quotes from famous players; reasons for taking lessons; a space to write in the date and time of the next lesson, beliefs about the swing. The choice is entirely up to the professional and the message he's trying to convey. There are many ways to be creative and still have your card be in good taste. (Illus 11-1)

Advertising is an essential element for business. But does it belong in the golf professional ranks? In the words of successful entrepreneur D.D. Palmer, early president of Palmer Chiropractic College (and no relation to Arnold Palmer), "Early to bed, early to rise, work like hell and advertise." The message is clear — if you want business, people have to know that you *are in business.* The golf professional doesn't need a Fortune "500" New York ad agency, but some form of advertising should be done whether it be subtle or aggressive.

One of the best ways to advertise and promote more lessons is for the professional to be an extremely competent teacher. Do a good job! This will set in motion what for the small business is possibly the very best form of advertising, *word of mouth.* It costs nothing but effort, yet produces a network of regular loyal customers.



Illus 11-1
A business card can be a functional, attractive, two-sided card like this, or one more elaborate.

Use of business cards and word-of-mouth are forms of advertising which can apply at any type of facility. In the more commercial forms of advertising, many options may not be available or desirable, practical, or ethical for the professional's situation. Nonetheless, the following is a list of some ideas for advertising and promotion:

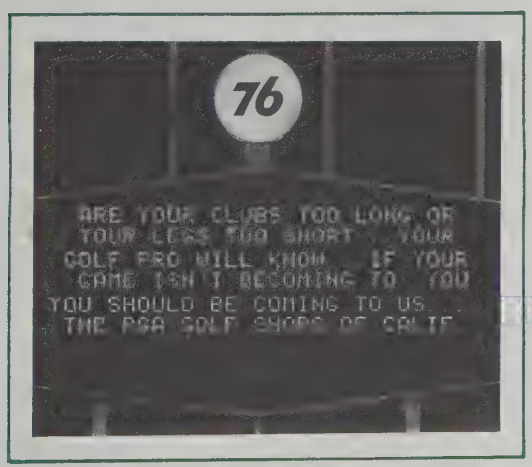
Forms of Advertising

- Media advertising — Radio, television, newspaper, magazine; buy space or time.
- Trade outs — Offer green fees or lessons to a radio, newspaper, or television station for all or partial payment on your commercial message.
- Print fliers that advertise your services and circulate them widely.
- Write a golf column or do teaching tips for a daily or weekly paper. (Illus 11-2)
- Offer to do tips for a television station.
- Put together a golf school and get a television station, radio station, newspaper or magazine to be the sponsor.

Illus 11-2
Golf professionals have been doing newspaper instruction for years and gaining valuable promotion from it.

Illus 11-3
Indoor teaching facilities for winter practice in the northern climates can be as large as this air-supported structure in Edina, Minnesota, or simply a room and a net in the clubhouse.

Illus 11-4
Promotion of golf is the theme at the annual New Jersey PGA Golf Show where the public sees not only merchandise, but can hit balls and receive instruction.


76
ARE YOUR CLUBS TOO LONG OR
TOUR LESS TOO SHORT . YOUR
GOLF PRO WILL KNOW . IF YOUR
CAME ISN'T BECOMING TO YOU
YOU SHOULD BE COMING TO US .
THE PGA GOLF SHOPS OF SO CA IF

Illus 11-5
The Southern California section of the PGA used an innovative promotional idea by running this message at Dodger Stadium in Los Angeles.

- Get a local directory from the chamber of commerce, listing fraternal, service, business and social organizations, and offer to do a golf school for their group.
- Do free public clinics for the local parks and recreation department.
- Offer a clinic to the public schools for physical education teachers and coaches.
- Offer media writers or broadcasters a series of lessons with them reporting the experience in diary form.
- Contact large companies or manufacturing plants with a plan to give group lessons or schools for their employees at your corporate or group rate. (Individuals pay, not the company.)
- Institute an annual "Most Improved Player Award" at the club or course. It will create a desire for instruction and practice.
- Regularly publicize an interesting comment from students that may be of help to others.
- Write an instruction tip for the club or course newsletter, or do student success stories.
- Promote lesson success stories with before and after pictures on the bulletin board, or on loop video in the shop.
- Tour the practice range on active days and give free mini-lessons if the student wants help. Mini-lessons and quick fixes lead to series lessons and long-term improvement.
- Put attractive notices or signs in appropriate places at the facility that are subtle reminders of this professional instruction service, like, "Golf is a tough game to learn alone. Your professional staff is ready to help."
- Arrange to have a play day with a different group each week. Some professionals play with a different group each ladies' day and men's day. Have a sign-up sheet. It's a natural for lesson business.
- Post a regular "golf thought for the week."
- Post interesting swing pictures of great players, adding helpful commentary.
- Set up an indoor teaching facility during the winter. (Illus 11-3)
- Create a rainy day lesson facility or space where people could get a lesson when they otherwise couldn't play.
- Instead of a "series of lessons" sell a "golf improvement program."
- Put learning aids on the lesson tee over the weekend to interest people in improving.

Promotion, Promotion, Promotion...all ways to create interest in golf instruction through advertising. (Illus 11-4, 11-5)

When Taking A New Position

If a professional is going to a new job at a club or course, particularly in a different area, it is important that the members or local players know that he is a good teacher and businessman. Since teaching is a business, he will have to let the people know what he is selling and the price of what he is selling. Is there a brochure or flyer about himself? It should explain: Who he is; where he is from; what he has done; what he is going to be teaching; what he can do for them; how he will do it; when lessons are available; where they are given; what the fees are.

A brochure should contain the professional's golf background, which might include his playing record; if he has attended PGA Teaching Workshops; if he has worked under a famous teacher or coach. Has he taught any champions? People like to know his background, what he believes and what he teaches. He may have a special way of teaching, a system, a new approach, a unique philosophy. He will have to be his own publicity agent and public relations department. It's important to get publicity in the local or area media about the "new teacher in town," a special press release that can be sent to as wide a distribution as is appropriate, depending on the importance of his new position. If he has a specialty, like the short game, driving for distance, or iron play, promote it. If it's a private club where he has just been hired, he should solicit the facility's help in distributing a letter introducing him to the club members, plus putting a story in the club newsletter. He might have an open house to let the members meet him and his family. If he is new, people will be interested in him and what he can do for their golf game. "Strike while the iron (or wood) is hot."

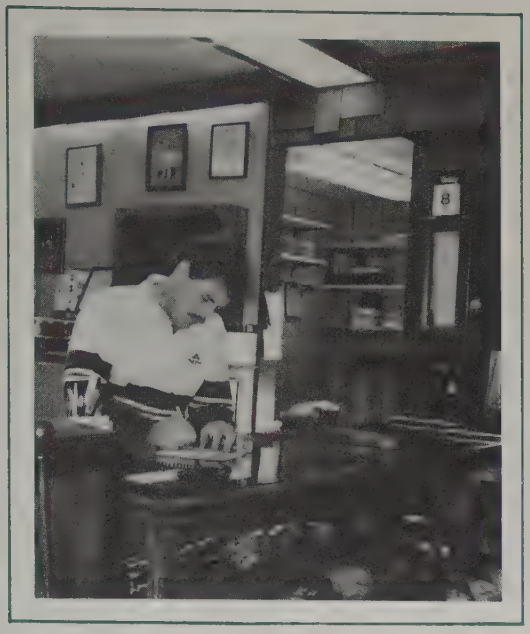
Priorities

It is improbable that one can use all of these promotional ideas because there wouldn't be time left to teach, let alone do the rest of the job. Be selective, consistent and have some variety, but do promote. It's part of doing business.

With imagination, plus concentrated effort on promotion and a dedication to good teaching, a professional's lesson book should be as full as he desires. At no time in the game's history have there been so many people seeking golf instruction as now!

Scheduling Lessons

It is important to set up a lesson-teaching schedule and keep to it. People will become familiar with the professional's hours if he establishes them on arrival at a new facility. To keep changing is not good for the teacher or the pupil as it is more difficult for either to plan a schedule.



Illus 11-6
Making it easy to book lessons encourages business.

The intensity of the schedule is also important to the professional's teaching performance. Too many private lessons can dampen the teacher's enthusiasm. Time allowed for playing lessons and schools and other golf promotional activities provides the teacher a change of pace for day-in and day-out private lessons.

The professional's appointment book should be set up to reflect his availability. The times that he is available for teaching should be marked clearly in case someone else is opening his book and scheduling for him. (Illus 11-6)

Times for personal appointments not concerned with lessons or activities at the club should be blocked off in the teacher's appointment book. What tournament is he competing in, or what PGA meeting is he attending? This way the student can better understand why the teacher is not available at a particular time and can plan to be worked into the schedule later. It is bad business for the teacher to frequently be absent with no specific information about when and if he will be available.

While it is important to have a set lesson schedule plan, it is necessary and advantageous at times to be flexible in accommodating the needs of your students. They will appreciate any extra effort made to help them.

Lesson Length

Illus 11-7
Lesson length will influence the amount of information the teacher should present. A good rule of thumb for a half-hour lesson is not to exceed one pre-swing and one in-swing per session. The in-swing error pointed out here is "fanning the face" in the takeaway.

When setting a scheduling policy determine the length of a standard private lesson. Most often, lesson length is one-half hour, although one might consider making the first session of a new student's series longer to cover additional material needed to lay the groundwork for his total improvement program. If several half-hour lessons are scheduled in a full morning, the teacher may wish to leave a half-hour space open after the third or fourth lesson to make up any lost time, or take care of other business.

Some professionals may prefer 45-minute lessons, changing pupils on the ¾ hour time. Since wrap-up and review is an important part of a lesson, these 45 minute periods allow the professional extra time for this purpose. Or, another possibility is the 45 minute lesson, but changing students on the hour. This again allows the professional to briefly check the rest of his business operation during those 15-minute breaks.

One-hour lessons are preferred by a number of professionals. In these longer periods, the pacing can be more relaxed, the explanations and demonstration more complete, and the pupil can hit enough balls under the professional's eye to see if he is correctly applying the recommended swing instructions. Also, the additional time allows a better chance to produce the desired result before the lesson ends. (Illus 11-7)

The selection from these three lesson lengths will be determined by the professional according to his situation. If his clientele are quite old, the shorter lesson may be more practical, because longer ones may be too physically tiring. Also, if the student load is extremely heavy, the half-hour lesson may be needed from a practical standpoint to accommodate the demand.

Pricing is also a consideration in lesson length. If the price for a one-hour lesson would discourage too many potential takers, then lessons of shorter duration would seem more appropriate. It's not out of the question to offer 15 or 20-minute lessons for a lesser amount in which the student and professional focus on just one point with one club.

"A teacher teaches — he is above criticizing."
Bunny Mason

Whatever length chosen, be sure to allot enough time for review and closing. Be patient but firm with the student who seeks to extend the lesson. For example, the professional has just finished the lesson with a student on curing a slice, the review has been completed, homework has been assigned, and the student has been asked by the professional to reiterate the major points and demonstrate the assignment to see that he understands. Then the student says, "One more thing. Could you watch me hit a few wedges? I'm having trouble with that shot." It's an awkward moment, but in most cases the teacher should politely decline, indicating that it's better to work on one thing at a time, and that when the slice has been covered then he'll be happy to work on the wedge. It is important for the professional to say a polite "no" so he can finish the lesson and maintain his time schedule. However, should circumstances allow it and judgement dictate it, of course, be flexible and give some extra time. One should always try to make the customer satisfied.

How much is too much — How many is too many?

Is there a limit to how many lessons one should give in a day? Yes! Here are the determining factors:

1. How much time should the professional be spending away from his other responsibilities associated with the job? That will depend on what priority is given to teaching in his job description and the demand for lessons. If hired primarily for his teaching skills then he must gather the staff he needs for other duties such as merchandising, tournament management, and club fitting. If the professional's livelihood depends primarily upon how well he does in the shop, not on the lesson tee, then he must limit the number of hours he can spend teaching and, if management/budget permits, hire others to do the teaching.

2. What is the professional's stamina level? How many quality lessons can he give in a day? Teaching is physically and mentally tiring when he is putting himself totally into it. If 100% effort — or close to it — can't be given, then he shouldn't be teaching the lesson. One noted PGA professional, Craig Shankland, suggests 10 half-hour lessons or 6 one-hour lessons is about the limit, while still giving the student the value for his money. Each professional will need to determine how many lessons he can physically and mentally handle and still do a first-class job.

Recordkeeping

In other professional services such as those of an accountant, physician, or attorney, records are kept on the transactions or appointments, and reference is made to them during subsequent meetings. *A golf professional, like any other professional person, should keep good records.*

Any golf professional in a highly active teaching situation cannot possibly remember all the things that he and the student have worked on in previous sessions. A detailed history on a pupil can, over a long period, be quite useful in solving present problems.

Reluctance to keep records has been attributed to the time consumption and cost involved in such a task. But recordkeeping can be both simple and inexpensive. Needed are a clipboard, some carbonless paper, and an accordion file or file drawer. The lesson sheets can be printed and personalized at a local print shop or purchased from a national golf supply house. This manual's appendix has such a form and an explanation of its use. (Appendix 11-A) By using carbonless paper the professional has only to write the information, tear off the top sheet, give it to the student, and file the second sheet alphabetically. When the student returns there is no need to guess what was previously covered. Judgments can be made quickly, with greater assurance, and the student gains confidence in this well-organized teacher.

Lesson Pricing

How much are lessons worth? How much is going to be charged? Teaching is a professional service. Professionals base fees on their experience, reputation, expertise and knowledge of their market. Check the golf lesson market in the area. What are the going rates? How much competition? Where does the professional and his facility rank in the immediate market? What is his customer's ability to pay?

After making the foregoing checks, establish the lesson fee based on the information gathered. If the professional is exceptional because he has spent years in teaching, developed a name on the Tour, or

extensively studied the golf swing and the art of teaching, then he should charge accordingly. The one caution is to not out-price the market and scare potential clients away. A good product at a fair price will attract people.

If a student is to take a lesson series, twelve for example, consider giving a discount from the price of 12 individual lessons, just as in other types of volume buying. The price break also encourages a commitment. If possible, have the student pay for a series in advance, so that he'll be not only emotionally committed but also financially committed to finish. It's in his best interest.

The charge per individual in a semiprivate (two to four people) or group lesson (five and above) is reduced since each will get less personal attention depending on the size of the group. The professional will receive more per hour than for a private lesson because the planning, organization, number of balls used and energy drain is greater than in one-on-one. So the larger the group, the less each student pays, but the more the professional receives. Here is a sample formula, although each teacher may wish to make his own:

Sample Group Formula

No. of Persons	% of private lesson fee (per person)
2	67%
3	53%
4	50%
5	47%
6	44%
7	42%
8	37%
9	34%
10	32%
11	30%
12	29%
13	28%
14	27.5%
15	27%

Example #1:
If the normal private rate for one hour is $40.00, then with ten people in a group it would be $40 x .32 or $12.80 per person/hour.

Example #2:
If the normal private rate for a one-hour lesson is $40.00 and four people want to take a one-hour, the fee would be $40 x .50 or $20.00 per person/hour.

Illus 11-8
The entrance to a beautiful and functional teaching facility at Onwentsia Country Club in Lake Forest, Illinois.
Photo courtesy of Hubby Habjan

Illus 11-9
Designed by PGA professional Hubby Habjan, it contains four roomy stations for practice.
Photo courtesy of Hubby Habjan

The Playing Lesson

Playing lessons can be charged by time or the number of holes. The professional may wish to offer three types of playing lessons. One type is where the player basically wishes to play golf with the professional. He wants to watch how the professional manages the course, to ask questions and get suggestions regarding his own game and enjoy playing together. A second type is where the player wants the professional to simply watch the player's performance on the course. (In this case there would be no need for the professional to play, only to observe.) And the third type is "on-the-course training" which means playing shots in situations set up by the professional. For example, the two may start in the middle of the 14th fairway and play a shot into the wind, then go to the greenside and try shots from a variety of bunker lies or pitching from long rough. This could be followed by the play of an entire hole where the professional works on the player's routine and the psychological factors. The charge for the third type of playing lesson should definitely be charged on a time basis, possibly the regular hourly rate. The other two could be determined either by the number of holes played, or on the time consumed.

Illus 11-10
An attractive indoor conference and video viewing room.
Photo courtesy of Hubby Habjan

The Teaching Facility

The professional who takes a position at an older, established club will frequently inherit a teaching and practice facility that is less than ideal. It is his responsiblity to do all within his power to enhance the quality of the facility so as to make the lesson experience and practice time as enjoyable as possible for his golfers. (Illus 11-8, 11-9, 11-10, 11-11, 11-12)

Any real estate agent will agree with the saying "location is everything." Modern golf course architects apply that statement by locating the practice area as close to the clubhouse or as convenient for the golfer as possible. If blessed with such a location, be thankful; if not, perhaps it can be changed. If the practice facility is remote, awkward to use, or inadequate in size, is there something that can be done? Can course rerouting be undertaken to convert the practice range into part of the course with a minimum of expense, so that existing holes can become a convenient practice range? If not, what can be done to make the present location more accessible? This is a difficult but often solvable problem if the desire exists and the financial resources are available.

Illus 11-11
Artificially surfaced moveable and replaceable platforms from which to hit.
Photo courtesy of Hubby Habjan

Illus 11-12
An expansive practice area with good target greens and a designated area for private lessons.
Photo courtesy of Hubby Habjan

Dual Directional Ranges

A desirable situation is to have enough length on the range to make it dual directional with tee spaces at both ends. This gives added flexibility for the instructional program. At one end of the range the professional and his staff can be conducting a school, ladies' clinic, junior lessons or some other group program without interfering with regular customer practice. Additionally, a dual range gives a player the choice of wind conditions and sun orientation if they are not favorable at one end. (f 11-1) Muirfield Village in Dublin, Ohio, has a 360-degree practice area so a player can choose any wind or sun condition in which to practice. A dual-tee arrangement also gives additional relief for turf maintenance and growth since the frequency of use of a particular area is diminished.

f 11-1 *Try and design the practice range so the players do not hit into the morning or evening sun.*

It is useful to add two practice greens at the opposite end practice tee. One for pitching and bunker practice and one for chipping and putting. (They don't have to be large.) This provides a full-service practice area for all major parts of the game. (Illus 11-13)

Illus 11-13
A grand dual-directional range at PGA West with practice greens and bunkers at each end plus excellent target greens in the center.

A Private Tee For Private Lessons

Whether one has a single or dual-tee range it is good policy to reserve some part of the teeing area for the instructional staff to give private lessons. *A private lesson should be private!* It should not be conducted in between two other people who are practicing and within easy earshot and sight of what's going on. It can be embarrassing and inhibiting for a person to "take a lesson in public." If at all possible, the staff instruction area should be screened off with vegetation, mounding, varied elevation, a wooden railing, something attractive, but which makes it exclusive. Designate this area for private lessons only. Don't allow others to practice there.

Ideal Conditions

The ideal golf practice area would have a grass tee area, with sufficient depth to allow for frequent rotation. A containment rope system is now commonly used to keep players practicing within a given space so that a uniform top-dressing plan can be implemented. For Bermuda grass tees the time needed for regeneration is 7-10 days in the summer and 10-14 days during the slower growing seasons. For rye grass and bluegrass the average time is 14 days. Playing from poor turf or no turf is not only a deterrent to practice but can make the striking of a solid iron shot quite a bit more difficult. Poor turf causes inhibition and anxiety in the person practicing, particularly if he or she is not an accomplished player. It can hurt their confidence. If poor conditions prevail, have your student tee the ball at the normal turf height.

f 11-2 Surlyn® or some other type of new chemically blended cover material.

Being able to practice with clean range balls in good condition is a motivator. The professional will have the best ball longevity and customer approval from a Surlyn-covered, two-piece ball. (f 11-2) See to it that the range attendant does a regular check to cull out damaged balls. Rejects can be donated to school programs. Good range balls make a difference!

Targets

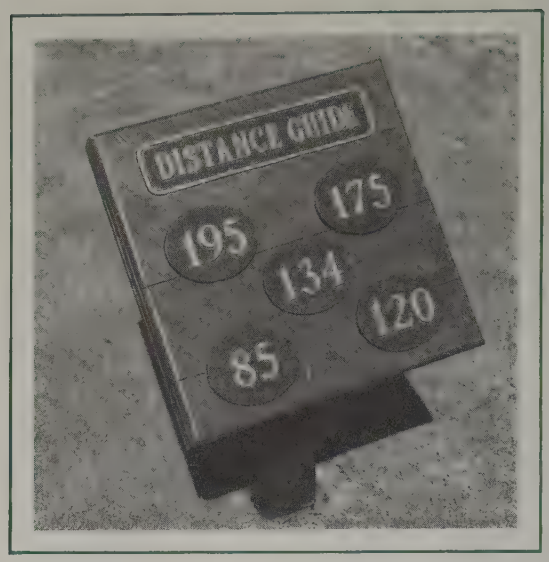
Golf is a target game. Therefore it is essential that the range has targets at which to aim. The more the practice experience can be like the playing experience the better. Simulated greens which are simply mounded areas with flagsticks are quite effective, especially when accompanied by simulated bunkers. These bunkers should not be filled with sand but rather kept at surface level with watered-in white aggregate rock, limestone, or fine concrete screenings which still allow a ball picker to operate as though it were firm ground. The target green may also be highlighted by 1) chemically burning an outline of the green, 2) planting a different (shade) color grass on the green, 3) scalping the targets, cutting extra short to make them brown, all with the idea of making the targets stand out. Another effect to simulate the golf course can be created by leaving or planting trees on the range as simulated fairways to stay within, or targets to maneuver around. (Illus 11-14)

Illus 11-14
An excellent dual-directional range with target greens, bunkers and trees at PGA National's Haig Range in Palm Beach Gardens, FL.

Players must not only learn proper direction, but the other half of golf's challenge, correct distance. Permanent measurement marker plates should be placed at several locations on the tee areas of the range. (Illus 11-15) This will offer the opportunity for players to learn their distances with different clubs. Even though containment ropes are moved, changing the distance to the target greens, there is always a reference point (the marker plates) from which to step the yardage. This is similar to determining the distance when actually playing on the course.

At the ends of the tee lines, past the effective teeing space, put some four-way roll mounds for practicing hitting from uneven lies. (Illus 11-16) If this is not practical, buy or have built an incline box that has an artificial turf covering. This can be turned in four directions, providing various uneven lie situations for practice.

Thus far, the examples have all related to grass tee ranges. Many of the practice areas in this country utilize artificial surfaces for teeing such as rubber mats with synthetic turf inserts or totally synthetic areas over a concrete or asphalt base. Some facilities that do maintain grass tees also provide an asphalted area on which tee mats may be placed when the regular area is too wet to use. All other previous recommendations in this chapter can apply just as well to the types of facilities which, due to volume, are unable to maintain grass from which to practice.



Illus 11-15
Practicing distance is critical for top performance. PGA National, Haig Range.

Illus 11-16
Professional and student practicing the set-up on a "four way roll mound." Part of PGA National's practice facility.

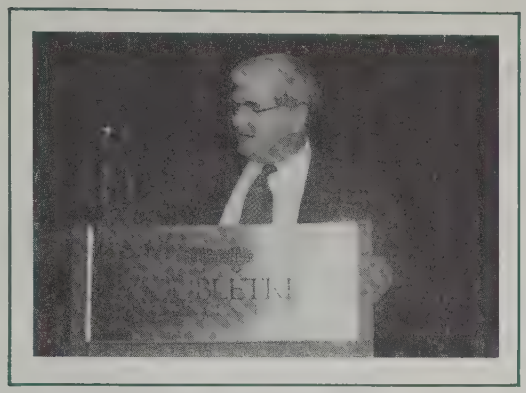
Aesthetics

The practice area should be a pleasant, relaxing place. Are there benches where a player can sit and rest or family members can watch? (Illus 11-17) Is there shade? A drinking fountain? For a real touch of class, is there music? Flowers? At Japanese ranges they provide oshibori (hot towels or cool ones on warm days) to wipe the face and hands when finished. The more attractive the learning environment, the more people will want to practice. Golf is a game played in a beautiful setting. Why can't we practice in similar surroundings?

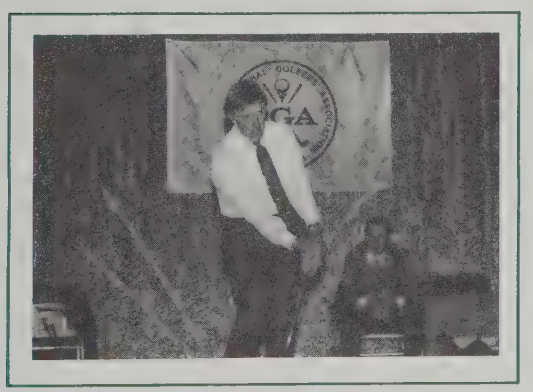
Illus 11-17
A golf practice area should be an aesthetically pleasant relaxing place.

What Makes
An Exceptional Teacher

Illus 11-18
The first PGA Teaching Summit attracted over 700 attendees, all there to improve their teaching skills.



Illus 11-19
PGA President Pat Rielly at the Teaching Summit commends the featured speakers, PGA staff and organizer PGA member Mike Hebron for their efforts on conducting the Association's single largest education program.



Illus 11-20
PGA member Ben Doyle at the Teaching Summit demonstrating his many instructional aids.

While there are many virtues that contribute to good golf teaching, five of these traits stand out in the mind of PGA Professional Jim McLean. He lists the following, along with ways to develop them:

I. Golf Knowledge

- A. This Means a High "Golf IQ"...
- B. Golf Knowledge Acquired Five Ways:
  1. Books — build your own personal library.
  2. Personal Playing — your own game improvement.
  3. Other Teachers: (Illus 11-18, 11-19, 11-20)
     a. Seminars
     b. Golf schools
     c. Taking lessons
     d. Personal conversations
  4. Great Players — talk golf with top players.
  5. Study Videotapes — bring the teacher to you.

II. Communication Skills

- A. Great Teachers Are Great Communicators
- B. Great Teachers Use All Resources/Techniques
  1. Good demonstrations
  2. Teaching aids
  3. Visual aids
  4. Books with good pictures
  5. Ability to say the same thing several ways
  6. Relate to other sports that students play

III. Motivation

- A. Great Teachers Inspire
  1. Make students feel good about their game and chances for improvement.
  2. Instill within the student the desire to practice.

IV. Energy and Enthusiasm — the Double E's

- A. Great Teachers Teach A Lot: It takes *energy* to teach a lot.
- B. Great Teachers Love The Game Of Golf and Are Enthusiastic: They Want To Make Golfers Better

V. Credibility

A. The "Believability Factor" — Does the teacher have it?

B. Credibility Must Be Earned Through The Years:

1. Through continued teaching success.

2. It helps to be a competent performer.

C. Teacher Credibility Predisposes The Student To Success Accordingly...

1. Students will *listen* more.

2. Students will have a higher level of commitment.

Expanding on McLean's five traits, PGA professional Craig Shankland lists in his pamphlet, "What It Takes To Be A Great Teacher," the following traits which offer a challenge to any aspiring teacher.

Ambition:
To be the very best

Articulate:
Can verbalize clearly and precisely

Businessman:
Advertises and promotes lessons

Communicator:
Transmits information in a simple manner

Compassion:
Is kind and understanding

Discipline:
Gives pupils needed discipline to stick to teaching/learning plan

Demonstrator:
Has the skill to show corrections

Enthusiastic:
Always projects enthusiasm

Environment:
Establishes a comfortable atmosphere

Eye:
Able to pick up flaws quickly

Experience:
Possesses a knowledge of golf that is not in the books

Image:
A role model, especially for young people

Innovator:
Invents drills that fit the problem

Knowledge:
Is master of the mechanics

Motivator:
Able to inspire, stimulate and influence the student

Organized:
Organized in schedule, method and procedure

Passion:
Has a passion for teaching

Patience:
Needs patience in guiding students and urges students to be patient with themselves

Personality:
Demonstrates a style, a smile and individuality

Psychologist:
Needs a basic understanding of the way we learn and the inner game

Specialist:
Focuses on being the best at teaching golf

Understanding:
Knows what the student is going through and reflects that in the method

Worker:
Knows it takes hard work to be outstanding

Other Considerations

Another way that the teacher communicates is through his personal appearance. He should look professional when he teaches. Be dressed appropriately in neat, attractive golf attire including footwear, either teaching or playing shoes. The professional and his staff are visible models for the merchandise they sell in the shop.

Golfers also note the professional's attitude and behavior regarding his (own) golf performance. If he tells people to practice, to exercise, to watch their diet and to play more golf, then he should try to do the same. A professional who is overweight, apathetic, in poor physical condition, does not practice and rarely plays will find it hard to convince his membership or customers to do otherwise. On the contrary, the professional who is in good shape, is energetic, works on his game and plays regularly with his golfers, by example, encourages his players to do likewise. One of the greatest influences on people is other people. The professional with a high degree of visibility *can be* a positive role model.

In Appendices 11-B, C, D and E, PGA professional Mike Hebron and others present information that would be useful to the teacher seeking improvement. Trying to be better should be a lifelong professional challenge. "THOSE WHO DARE TO TEACH MUST NEVER CEASE TO LEARN," will always be a preeminent philosophy for the exceptional teacher.

CHAPTER 12

How To Give A Lesson

& Error Correction

CHAPTER 12

How To Give A Lesson & Error Correction

When you do something routinely every day, like giving golf lessons, it may become difficult to appreciate the importance others may place on that experience. Businessmen handling multimillion dollar deals daily don't have to be reminded that they have a golf lesson on Thursday at 2:00 p.m. Why? Because it's important to them. This importance to others must be appreciated by the teacher.

The first three basics that should reflect the teacher's attitude toward the importance of the lesson are:

To be there.

To be there on time.

To be there on time and prepared.

1. *Be there —*
"There" should be a designated place the professional meets his students. The practice putting green, for example, if it's near the range. In that way, if the student arrives early or the professional is delayed, the student can practice rather than be waiting idly looking at his watch. If the putting green is inconvenient, have a place at the range where there are balls for a waiting student to use for warm-up before the lesson. Get him into something productive — don't waste his time!

2. *Be there on time —*
A teaching professional with an active lesson book and a habit of being late will live a frustrating life and cause many people to become irritated. Plan and be ready for the lesson early. Establish a policy of being organized and ready five minutes before the lesson begins. You will develop a reputation for punctuality which people will appreciate.

3. *Be there on time and prepared —*
Have all of your teaching materials and learning aids at the site when the lesson starts. If you keep records from previous lessons, have them with you. Have balls there and the learning area (tee, putting green, etc.) reserved. Be clear in your mind as to the procedure you'll use with this pupil. In other words, be prepared for the lesson! (See Appendix 12-A.)

First Things First

When the student arrives meet him with a *smile.* (Illus 12-1) Let him know with the best body language tool in the business (a smile) that you are happy that he is there for a lesson. Step toward him (a sign of acceptance) and offer a handshake or do whatever will show him you are looking forward to working together.

Illus 12-1
Make the student feel welcome. A smile is a good way to start.

"Nobody ever looked up and saw a good shot."

Dan Herold

Get him to feel comfortable, to relax, by engaging him in casual conversation about his situation, i.e., travel, family, hobbies, etc. If he is anxious or tense, it is difficult for him to learn, so the teacher should make him feel at ease. Those students coming for a lesson the first time may be nervous...some are petrified. It is not uncommon for a new student to be visibly shaking. When this is apparent, create an activity, like a drill, that will distract him until the fear, embarrassment, and tremors disappear.

Compliment Before You Criticize

A person's self-esteem is critical to his performance. Find something complimentary to say about the student or his technique before finding fault. Recognize the positive, those things the player is doing well. "That's a very good grip, where did you acquire it?" "You have a nice sense of rhythm." If nothing else, "My, what a sporty outfit." This approach of offering a compliment is too often overlooked in a rush to get to the corrections. Besides, there frequently are more good things about the player's technique than bad. Acknowledge the good before mentioning the bad. An honest compliment will help establish a good teacher-student relationship and will keep the student relaxed. It will also reinforce the student's self-esteem.

Procedure

If this is the first lesson with the pupil, there is some information the teacher should have. (See the sample information sheet in Appendix 11-B) Some of this information is vital in determining how to conduct the lesson. For example: Does the student have any physical problems or health conditions which might limit his golf performance? Has he had any recent surgery or illness that could have an effect on his golf game? Either of these questions could have a response which might influence the approach to the lesson. If, for example, the student has a disc fusion in his lower back which limits trunk rotation, the professional's usual style preference might be adjusted to substitute more lateral motion rather than a strong rotation in the forward swing, or the use of more leverage with arms and hands and less winding and unwinding of the body.

What are the player's goals in golf? Perhaps all the student wants is to be able to get the ball airborne with a fairway wood. That means one lesson, maybe two. The approach would then be more remedial than reconstructive. If the student wants to improve from a present handicap of 18 to a single digit and the problem lies mainly in swing technique, then there is a need for a developmental series of lessons. With knowledge of the student's objective, the professional's procedure can be targeted. In the case of the student who seeks a lower handicap, the professional needs the luxury of commitment. This

means adequate time is made available to eliminate bad habits and build good ones in their place. How much time can the pupil devote to practice? If a person responds, "One hour per week," then the improvement he can expect will have to be limited. With only one hour a week the lesson itself must be devoted partly to review and practice of the previous skill introduced. Therefore, the time available for adding new material will be reduced. *Goal setting* is one of the most important steps in realizing achievement. Anytime a student comes for a developmental program of lessons it is imperative that a goal is established. Follow these four suggestions in helping a student to set goals:

"The average golfer's problem is not so much the lack of ability as it is a lack of knowledge about what he should be doing."
Ben Hogan

1. Make them challenging, but attainable.
2. Develop them together with the player.
3. Be specific.
4. Make the goals progressive from short-term to long-term.

Beginners

In the first lesson with a beginning student, consider taking at least one hour. This gives the professional a chance to establish a rapport, gather information, acquaint the student with golf's pitfalls and promises, and to start the student with a concept of the golf swing and the game. A sample information sheet giving a conceptual outline is provided in Appendix 12-B. It makes sense from the beginning of the instruction for the student to have a clear idea of what the teacher seeks to accomplish and the effort that this requires.

Illus 12-2
Warming up with the student before the first shots are hit helps prevent injury.

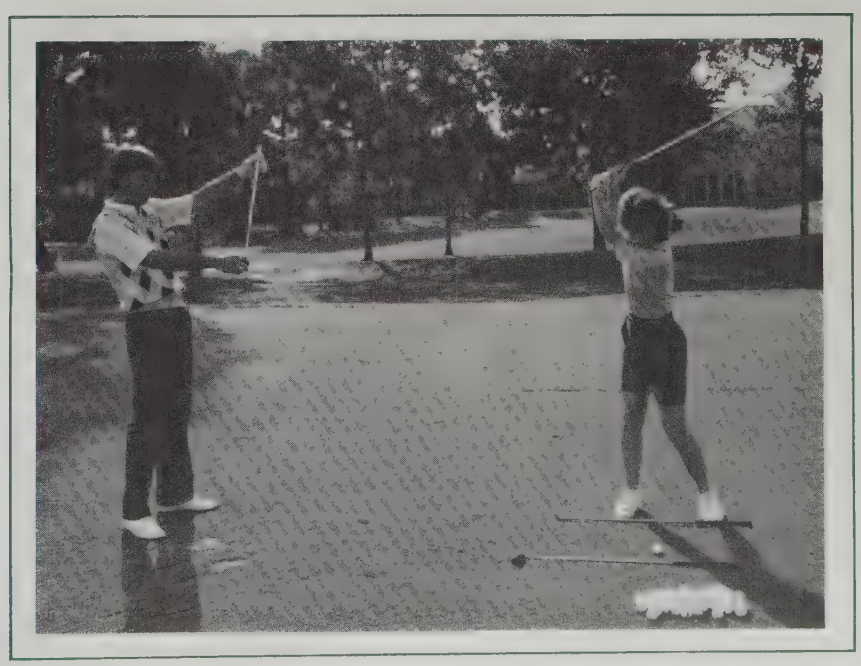
Procedure

Develop a pattern or procedure to regularly follow in giving a lesson. Once any needed paperwork is completed, a rapport has been established, and the student has been complimented and is relaxed, where should the teacher start?

Part of the relaxation procedure may incorporate physical warm-up. Have the student do some stretching and swing two clubs held together. (Illus 12-2) Then ask him to hit some shots with a short iron, like a #7 or #8, something that is relatively easy. If, in hitting his early shots, he appears flustered over a missed effort, explain that some poor shots are expected, that the reason for the lesson is to see if poor shots can be minimized or eliminated.

With the inexperienced student, a small number of balls hit with one or two clubs should give enough information to determine what course of action to take. With a more accomplished student have him go through the bag with every other club from wedge to driver. The better the player the more information the teacher should have before offering suggestions for change. With an extremely good player it may even be wise to play several holes with him on the course to compare his playing swing with his practice tee swing and to evaluate his overall game.

In either instance, start from a "sighting down-line" position (Illus 12-3) and ask the question, "Where is your target?" Alignment has a tremendous influence upon the resulting swing, so check to see where the student's feet, hips, and shoulders are aligned relative to the target. While in the down-line position also check the set-up, i.e., distance from the ball and body posture. Are the knees slightly but not overly flexed? Is the upper body bent forward at the hips so that the arms can hang comfortably? Is the back reasonably straight? Look at the grip from this down-line angle. Is control maintained in the last three fingers of the left hand at the top of the backswing? Is the



Illus 12-3
Looking down-line is the place to check aim, swing plane and posture, among others.

body sustaining its tilt during the swing? How correct is the swing plane and path? Has the plane steepened or flattened in the forward swing? Is the approach of the clubhead coming from inside or outside the intended flight line? What is the left wrist and clubface position at the top of the swing? Do the wrist position and face position match? Where is the club pointing in relation to the aim line?

Next move to a head-on facing position looking at the player's grip. (Illus 12-4) Is it neutral, open-faced or close-faced? Are his hands high or low in placement? Do the hands appear to be exerting a tight or light pressure? Watch the hands from the address to follow-through to see if there is any change. Then check ball placement and general body motion, including weight transfer. Is the ball forward, centered or back in the stance? Where is the player's body weight at address (both upper and lower)? Does the weight transfer over to the right leg in the backswing and move correctly to the left side in the forward swing? Is the finish in balance?

A third viewing location, though used infrequently, is from the student's rear (Illus 12-5), facing his backside, where the teacher can better see the hip and shoulder levels, the backswing length, a reverse weight shift and get a good sense of the lower body movement in the forward swing. A few teachers also like to view *practice swings* from down-the-line *in front* of the student to better see swing path and finish position. This location has some risk in the event the student accidentally lets go of the club. Obviously, no balls are struck, only practice swings are made.

The purpose of viewing the student's action from these various positions is to visually gather information. You may add to what you see by asking the student questions. What is his key swing thought? How tight does the grip pressure feel? Has he made any swing changes recently? Why? What does he feel when he hits his best shots?

Illus 12-4
From a head-on facing position, check grip, ball position and general body motion first.

Error Correction — A Logical Approach

After the professional has made his fact-gathering trip around the student, he should put into effect a clear, objective and logical program to correct problems noted. Let's use an analogy. In attempting to start one's car in the morning, the battery turns the engine over but nothing happens. What is the problem? Begin with the basics. There is a law to deal with, the law of combustion. Two elements must be present in the right environment to produce combustion: spark and gas. Logic says one of those two elements is missing. If it were gas there could be several reasons. The car could be out of gas, a fuel line could be clogged, the carburetor or fuel pump could be malfunctioning. There are equally as many possibilities if the failed element is spark.

Apply a similar logical approach to watching an errant golf shot. There are two problems: distance and direction. If the bad shot is a hook for example, it is primarily a direction problem. Basically, there are two factors which influence direction: clubhead path and face position. Like spark or gas, the teacher must determine which of the two factors is the primary cause of the problem. To produce a hook, path and face combined are the components. Let's assume that in this instance face position is the primary cause since the swing path is traveling toward the target at impact. If the face is closed, what is causing it to be closed? The information already gathered should answer that. (f 12-1)

f 12-1 For a sampling of golf's most complete error correction text, see the Training Log Method and A Primer on Golf Swing Errors. (Appendices 12-C and 12-D.)

Illus 12-5
Watching from behind the student can sometimes give the teacher a better position from which to observe a reverse weight shift, footwork and lateral motion.

Step-by-Step

To correct the hooking problem, first check the grip, both the left and right hand. Are the hands in a natural, neutral hanging position, or do either of them rotate away from neutral? (Illus 12-6) In many instances, the professional will have to go no further than the grip for the answer. A faulty grip is one of the most common causes of incorrect face position.

If the grip is acceptable, go to the next possibility that may be causing a hook. Where is the clubface aligned at address? Has the student closed the face when soling the club? This is frequently the case when a player with an otherwise fairly acceptable swing complains that all his fairway wood shots stay low and left, barely getting off the ground. Does this player have the mistaken notion that at address the clubface of the fairway wood should be more vertical, like the driver? Has he, therefore, hooded and closed it to get that appearance?

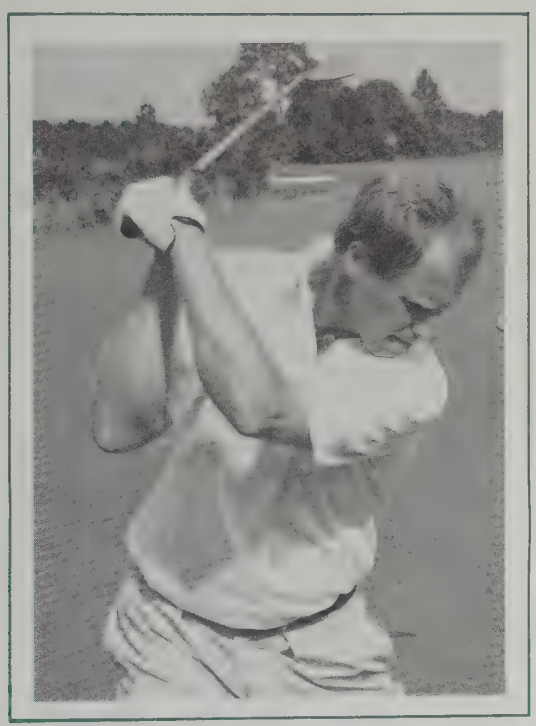
If the club has been soled correctly and the face is square, then proceed to the next possibility which can be viewed from the head-on facing position. Where is the ball placed? If it is too far back in the stance toward the right foot, the clubface may be square to the flight line at address, but closed to the actual path of the swing. If this is not the case, look for an exaggerated rotation of the forearms, unlikely but possible. Should none of these be the problem, move to the original rear "down-line" viewing location. What is the position of the left wrist at the top of the swing? If the wrist is bowed and the grip is correct, the face will be closed. (Illus 12-7) If the player's wrist is flat or slightly cupped, the professional must seek another possibility. Check again to see if the release in the forward swing has allowed a return of the arms to a natural, extended hanging position, or has there been an aggressive rotation of the forearms and hands to cause the face to close? The view from here may confirm earlier observations. If excessive rotation is not the case, has there been a hinging action of the hands at the wrist joints (Palmar-flexion in the right, dorsi-flexion in the left) causing the left wrist to break down and the face to close? (Illus 12-8) If none of these are apparent, check the grip once more but this time check it at the completion of the shot. Ask the student to resole the club after he's finished the swing. If the face is now closed, then the hands have taken a new position during the swing. The player has re-gripped. He has let go with the left hand and gripped the club more deeply in the palm and fingers of the right hand.

Illus 12-6
If the student's hands are placed in this type of closed-face position the teacher can anticipate either a hook or a manipulation in the swing to prevent one.

Root Cause or Result?

Once the professional has identified the problem he must decide if the problem is the root cause for the hook or only the result of some other more fundamental error. Using the hooking example, let's assume that the player is a rare example of overly rotating the hands and forearms, but, there was a more fundamental cause. The reason for the over-rotation was that the player had misinterpreted the role of the body's move in the downswing toward the target, and was overemphasizing "keeping his chin behind the ball." This move of lower body toward the target, with head position back, kept the body closed to the target longer than necessary; less body rotation opening to the target transferred the angular force more quickly to the arms, making them rotate earlier and more aggressively than normal. The opposite would occur (a block) if the body were opened too early in the forward swing and the arms couldn't catch up. Thus, rather than tell the student to "not rotate the arms and hands as much," the professional should correct the body's action. In this case get the student to release the body, turn and face the target a little sooner in the forward swing with a more vertical finish rather than a letter "C" finish.

At this point the error has been identified. What is the procedure for correcting it? How does the professional select the antidote from his storehouse of cures? This is where the teaching art blends with science.



Illus 12-7
The face position is shut for this player because the left wrist is bowed.

Illus 12-8
Left wrist breakdown at impact can cause a severe pull hook and may fool the student who thinks he/she is "coming over the top," from the outside when the swing was actually from the inside.

Error Correction — The Teacher's Role

A golf teacher may be compared to a physician in that he must observe, diagnose and prescribe when something is wrong with the patient. This process is what the teacher does the majority of the time on the lesson tee. It's sometimes called error correction teaching, but it should be developmental in nature, i.e., it should lead toward a permanent solution, rather than a temporary cure.

The golf teacher's role, like the doctor's, should be understood. Teachers can prescribe, recommend, even demand, but the responsibility for learning is still on the learner, the student. The student must appreciate this. Student/teacher success to a large degree depends on the student understanding the prescription and the desire of the student to apply what the teacher has prescribed. A doctor can collect data through observation, develop diagnoses and prescribe the proper medication or lifestyle changes, but if the patient chooses to ignore the counsel and not buy, or buy and not take the medicine, or deviate from the prescribed program, he will not gain the desired benefit. So the true responsibility for learning is on the learner. The teacher serves as educator, facilitator, motivator, counselor — all essential to the learning process — but he can't be the performer. People learn by trial and error. The teacher's key job is to simplify learning as much as possible and to minimize the time it takes to learn what needs to be learned. That is why the golf teacher must provide a practice routine and check on whether it has been carried out. The teacher should ask, "Did you do your drills? Are you working on that new grip position? Have you done the prescribed chipping practice?" Remember, "Learning is a change in behavior that comes about by practice." *Suggesting* change is not adequate, there must be a consistent effort by the student to implement changes recommended by the teacher. PGA professional Paul Bertholy, the maestro from Foxfire, N.C., has described the greatest fallacy in teaching as "the expectation of execution from suggestion." If the teacher and the student want success there must be an implementation program. Words aren't enough.

Practice doesn't make perfect, or even make better, if what is being practiced is incorrect. Therefore, what the teacher diagnoses and prescribes in correcting a student's errors becomes critical to how quickly he will improve, or if he will improve at all.

All golf teaching, including error correction, should lead toward improved technique. There are times when a student needs to be propped up with a "gimmick" idea, an unusual position or a move to get short-term improvement, but these should be rare. The professional's basic error-correction program should be rooted not in gimmicks or quick-cure suggestions, but in applying sound principles to achieve long-term results. (Illus 12-9) (For a basic error correction guide related to Laws, Principles and Preferences, see Appendix 12-C.)

Illus 12-9
Working on the principle of connection by putting a wood head cover under the left arm.

Solving a Problem — An Example

Let's use another example. The problem is *direction*...a slice. Is this a problem of path, face, or both? If the problem is an open face, then by a process of elimination or instant recognition (depending on the teacher's experience) he zeros in on the cause of the open face. A logical progression would be:

"You make twenty mistakes into your backswing and correct ten of them coming forward, but unfortunately you haven't quite balanced your budget."

Harry Obitz

a. Is the face open at address?

b. Are the hands positioned correctly on the grip or rotated too far counterclockwise to an open-faced grip?

c. Is the face "fanned open" on the takeaway?

d. Does the player cup the wrist at the top, allowing the face to open?

e. Does the wrist go from flat (square) to cupped (open) on the forward swing?

f. Is the back of the left hand looking skyward at impact?

g. Has the player tightened his forearms excessively and blocked the release needed to square the face?

h. Is his body rotation too far ahead of his arm rotation, not allowing the face to catch up?

i. Is the upper body tilted too far to the right, laying the arms and hands open?

j. Has the centerline of the body moved past the ball in the forward swing at impact, leaving the face open?

k. Has the player pulled the hands excessively past the ball, not allowing the clubhead to return to square?

When the error is identified, demonstrate it to the student, describe the cause and effect, then show and explain the correction. The diagnosis and correction will be reinforced in the student's mind by use of visual evidence such as seeing the error on video, on a graph-check or 35mm picture, in a mirror, or on an electronic teaching analyzer. (Illus 12-10)

Illus 12-10
Providing visual evidence reinforces the teacher's observations.

Photo by Jeff McBribe

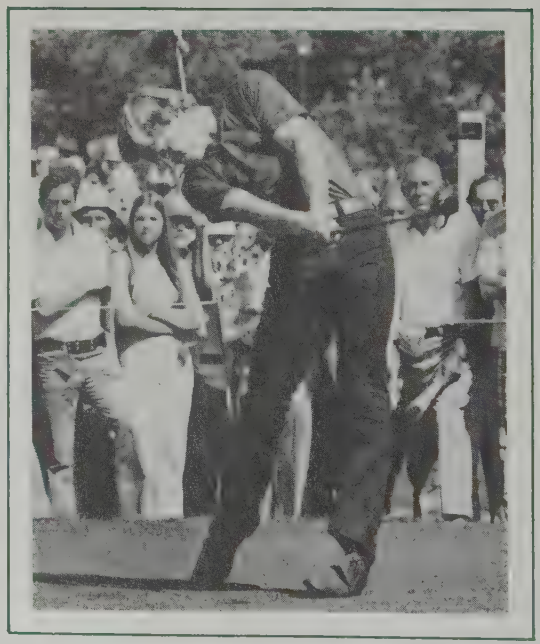
Selecting a Priority

One of the worst things a teacher can do is to experiment with a student, offering a series of potential cures, i.e., "Try this. Okay, that doesn't work, try this." Bouncing from one possible solution to another is a sign of the teacher's inexperience and uncertainty. The "master teacher" identifies the critical problem or problems, prescribes the solution or solutions, and then sticks to them, even when the results are slow. He may modify an approach if it is not proving effective, but he'll keep the same objective. Example: The student has a reverse weight shift. The teacher makes the analogy that weight transfer in the backswing is very similar to throwing a ball, which the teacher then demonstrates. If in swinging the club the student is still not making a correct move, the teacher gives the student some golf balls to throw, to get the feeling of weight transfer. The teacher then discovers the student grew up in Holland and is inexperienced at throwing. *Ball kicking,* not throwing, is what a child learns in that country. The throwing analogy is dropped, but the objective is not. The teacher focuses on a new way to get a transfer of ample body weight over the right leg. "Let your upper body weight feel like it's more over your right knee on the backswing as though you were about to hurl a large stick across a stream." This or some other example could be the next approach.

The teacher should focus on the objective until it is met. This does not mean that the teacher is always correct in his original plan of attack. If he realizes that his initial approach to the problem will not be effective, then he should simply tell the student to dismiss what he was just doing, that a different tack will be needed. This is not experimenting, it's simply being honest.

Not All Teachers See The Same Priorities

A group of teachers watching the same student may have different ways or methods to attack the problem. A few years back an article appeared in Golf Magazine entitled, "If I Had 10 Minutes With Miller" (Johnny). Ten well-known teachers were selected to give their opinion on what they would do if Miller were their pupil. Johnny was in an extended slump at the time, after being nearly infallible a few years earlier. (Illus 12-11) The variety in the teachers' prescriptions was startling. Two professionals agreed on the identification of one major problem, two others agreed on another, but all four offered varying solutions. The other six professionals each selected another problem they identified in Miller's swing. The point isn't that they all were wrong, on the contrary, all may have been right to some degree. Each may have helped Miller by using his particular approach. Some might have achieved better results than others because the error they identified may have been more critical to the overall swing performance. Different teachers analyze swing problems from the point-of-view of their different experiences.



Illus 12-11
Johnny Miller's slump following superstardom created considerable speculation in the professional teaching community.

Not Always Mechanics

There is another possibility which is frequently overlooked even by the players themselves. *The problem may be something other than swing mechanics.* The reason they start returning high numbers might be psychological; personal concerns, physical injury or maybe they just aren't making any putts. Identify as best one can the source of the problem by asking numerous questions, observing and testing. It's similar to the procedure a physician would use.

Another Case — Finding the Critical Error and the Master Key

"O wod some power the giftie gie us to see ourselves as ithers see us; it wod frae mony a blunder frie us, an foolish notion."
Robert Burns

This next example is a recommended procedure to be used when identifying errors; it's to find the critical error and insert "the master key," or correction. For example, in a particular case the teacher sees four problems: 1) *a grip that is too tight* which restricts the cocking of the wrists, 2) *inadequate shoulder and trunk rotation,* 3) *lack of weight transfer* from the rear (right) foot to the forward (left) foot, in the forward swing and 4) *an early collapsing of the left arm* which causes the swing path to be pulled in prematurely. Read them again and picture the errors. Remember, change only those techniques which have a negative influence. Don't make changes just for style's sake. If it works, don't fix it. Success is measured in score, not style.

Of the four errors identified, the task is to repair the one most critical to improving the performance. There may be a single, *master* error contributing most toward the bad shots, one that negatively influences other aspects of the swing. In the four error examples given, the professional might incorrectly identify the *master key* error and suggest that *the student work on a bigger shoulder and trunk turn,* allowing the left heel to leave the ground more and to reach back farther with the arms. This might solve the inadequate shoulder turn, but is the *wrong* choice. Ball striking would be just as poor, and possibly worse, since the student 1) will likely resort to a reverse upper body weight shift if he is trying to keep his head centered, or 2) if the head moves to the right and upward on the backswing, he will find it difficult to consistently return to the correct impact position. Increasing the shoulder and trunk turn, although a problem, was not the solution or the master key. Likewise, 3) trying to get the weight shift from the right foot to the left or 4) trying to keep the left arm straight might appear to be plausible solutions, but neither was the master error.

Number 1...*extreme tension from an overly tight grip* is the critical error causing tightness in the arms so they can't swing freely. In this case failing to complete a shoulder and trunk turn is the *result* of a poor arm swing. Also, tension in the grip inhibits an adequate wrist cock, forcing the player to seek the power from right-side leverage. With a short backswing, the player must hit prematurely to try and square the face. This leaves lower body weight predominantly on the right foot, resulting in an *improper weight transfer.* An early release from the right side makes the *left wrist break down* and inhibits the left forearm from rotating. Instead of the left elbow pointing downward as the right arm extends after impact, the left elbow is forced sideways. This pulls the clubhead path left. *A lighter grip pressure* is the "master key" here, and correcting it would encourage the other faults to vanish. (f 12-2) That's identifying the critical error and finding the "master key."

f 12-2 Light grip pressure is not the solution to every swing problem. On the contrary, there are times when the grip pressure (frequently in the left hand, occasionally in the right) should obviously be firmer.

A Classic Story

One anecdote to further illustrate this "master key" concept involves the legendary Bobby Jones and his Scottish professional mentor from childhood, Stewart Maiden. Jones was preparing for the 1925 U.S. Open at Worchester, Mass. His practice rounds were pathetic, with scores in the eighties. Jones made a desperate call on Tuesday to Atlanta requesting that Maiden come up on the night train to see if he could straighten Jones out the day before the event. When Maiden arrived, they went straight to the practice tee armed with two bags of practice balls. Jones hit a whole bagful with no comment from Maiden. Halfway though the next sack Maiden turned to leave, exiting with this comment — "Why dn'ya try ittin it ane yer bak swing?" (Why don't you try hitting it on your backswing?) That was it! Maiden, who never cared to waste words, had watched his student quietly and carefully, selected the critical error, (Jones' tempo away from the ball had become too fast and it was throwing off his timing) and had communicated the "master key," granted, in a somewhat sarcastic way. The point is, Maiden didn't experiment with his student; there was no "Well, let's try this." He quickly identified the most important problem that, when corrected, would set things straight. Jones, by the way, went on to tie for first, losing by one stroke in a thirty-six-hole playoff.

Patience and Encouragement

Not every lesson situation will present a single master key solution. Most won't. Usually, the teacher must patiently deal with the errors, one at a time, in the order of their importance, substituting positive fundamentals. If several changes must be made before consistent ball striking is to be achieved, explain this to the student and work on one change at a time. Encouragement from the professional is

necessary at this point, for while the student has made some positive changes, he may still see no improvement in results. The teacher must be patient and exhibit confidence, while also reminding the student to do likewise. Neither student nor teacher should expect miracles, but rather a steady improvement with continued practice. Find some aspect of the student's technique for favorable comment, especially when the shot production is still going badly. The student needs positive feedback.

The Mistake of Trying To Accomplish Too Much

Trying to accomplish too much during a single session may be the most frequent teaching mistake. All the problems don't have to be solved in one lesson. If one tries to do so, he'll probably experience frequent failure. This is the result of "overloading the learning circuits." Do one thing at a time. Keep the task simple and easy to understand. (Illus 12-12) Drill it, practice it, apply it, until both the teacher and the student feel comfortable with the change. It is a good rule-of-thumb to limit the corrections in a half-hour lesson to a maximum of one pre-swing and one in-swing change. If more change is needed to hit good shots, save it until the next lesson. This is a matter of the teacher's judgment and will reflect his competency in the "pacing" portion of the teaching triangle discussed earlier. Proper pacing is one of the hallmarks of a great teacher. The "great ones" have confidence in what they are doing and from experience have developed a strong sense of how long it will take to achieve the desired result. Be patient; change takes time and repetition. Don't rush progress. If a student quickly makes the two corrections he's been given, have him try hitting other clubs to test these two changes ...repeat, review, reinforce. In the last fifteen minutes of the lesson the scenario might be limited to reinforcement, "Good shot, nice swing, now let's do it again — that's not all bad." As Bill Strausbaugh of Columbia Country Club in Chevy Chase, MD, has said, "I may bore you, but I never want to confuse you."

Illus 12-12
The toe up is a solid fundamental position which is easy to understand.

A Tough Question

What do you do when the student's performance is obviously worse than when the lesson started? Changing a habit is not easy, it takes time. Thirty minutes or an hour is usually not enough. Explain that negative or regressive performance is often part of the learning process, but is only temporary. When the student is eliminating old, bad swing habits and learning new, good ones, it is often an uncomfortable experience. Assure the student that time, patience and practice will alleviate the situation and that he will begin to see progress and it will feel more natural.

Should you ever give the student's money back if he is worse after a lesson? Most students do better after a lesson. It may be immediate, or in a few days, after some practice. Immediate improvement is possible but not always predictable, so neither teacher nor student should expect it. Practically speaking, the two of you must give the lesson a chance "to take." Improvement depends quite heavily on the student's efforts. No refunds are necessary if the teacher knows that he has given his all but the student failed to respond. Being offered a refund could be embarrassing for the student. It's like saying, "I can't help you because you are hopeless." But, if the teacher feels he has given a particularly poor lesson and knows it, and the student knows it, he might say, "Today's lesson doesn't count in your series. It was just a trial balloon, so we'll extend your program one more session."

A Tested Formula

In giving a lesson, use the pattern which has proved itself over many years in the teaching of any skill. *"Tell them what you are going to tell them* — then — *tell them* — then — *tell them what you've told them."* More explicitly, after warm-up and initial ball hitting, explain what the lesson is going to include and highlight the major points to be covered. Then, not only tell, but show by demonstration, pictures, video, etc., and have him/her feel (by drills, aids, etc.) the technique changes desired. Let the student experience, practice, exchange feedback and feel results. The number of balls to be hit could be many, a few, or none, depending on what the teacher is trying to accomplish. The lesson could be all practice swings and drills. This is not common, but can be very productive. The tendency is to hit too many balls during a lesson rather than work specifically on technique improvement though drills, positioning, and practice swings. Finally, with 3-5 minutes left in the lesson, call a halt and "tell him what you've told him," i.e., review. At the conclusion, ask the student to explain in his own words what he was doing incorrectly, what changes were made and why, and have him demonstrate the correct technique. Then set a practice (homework) plan. Depending on this plan, determine the number of days before the next lesson. Give the student a clear, reasonable assignment that he agrees to do. Such practice assignments are a key element in the learning process.

Teachers usually follow a particular pattern in giving lessons, and that's good. But don't become boringly rigid. Flexibility is the sign of a creative teacher. Be different when the situation calls for it.

End all lessons with words of encouragement. If the lesson has gone well and the student is pleased with his progress, give praise. "I was really happy with your progress today, Mr. Southworth." If progress during the lesson has been less than hoped for, give encouragement through promise. "Now just practice exactly what we did today, Dr. Tracy, and you'll see a marked improvement by the next time we're together." Be positive.

Developmental Concept

One PGA Professional used a tongue-in-cheek approach to make a point when asked by a student for a lesson. The professional politely responded by saying, "A lesson on what?"

The student said, "A lesson on the swing."

The professional's response was, "I'm sorry, I don't give a lesson on the swing. I do give *a* lesson on how to not top the ball, or *a* lesson on getting out of the bunker, or *a* lesson on hitting the soft pitch around the green. But *a* lesson on the swing? No, that might not be good for you at all. If you want to improve your ball striking, we will need more commitment than *one* lesson. It may take two, or three or five lessons until the changes we'd have to make have time to stick. You want to succeed, and I want to succeed, and neither of us has much of a chance in *one* lesson. So let's do it right. Why don't we put together a program to get done what you want accomplished?"

The gist of this example was similarly demonstrated by a quotation from *Sports Illustrated.* PGA member Derek Hardy was asked how he could charge $275.00 for a series of six lessons but $1,000 for just *one.* His reply was, "If they expect a miracle, they should pay for it." The comment, of course, is in jest, but the point is well made. Changing swing habits is not easy. It may be quite unrealistic to think that it can be done in a single lesson. Of course, single lessons are given, and sometimes minor miracles take place. But more often, it takes time and patience to change! The professional's responsibility is to do everything he can to produce improvement, which might mean first *selling* the student on making a commitment. This is not "hustling" lesson business, rather it is an honest attempt to give the pupil the best chance to achieve a better golf game. Once the student has established a goal and is committed to a series of lessons, either a predetermined number or an open-ended arrangement, the professional can lay out a developmental plan.

Developmental Plan

Since the factors of shot technique, psychology, fitness and equipment all dictate the formula for potential success, the professional and the student must decide if some or all of these will be addressed. If the plan is to focus only on technique, an assessment of the student's skill in all aspects of the game is needed, i.e., chipping, putting, long game, bunker play, etc. (Illus 12-13) This can be accomplished by a subjective evaluation but is even more effective if supported by data collected from actual play or testing on the range. Weaknesses should receive more attention than strengths in the practice program. If the student seeks a more complete program it should include physical and psychological training as well as equipment testing and evaluation.

Taking The Lesson — Seven Tips

Successful instruction requires effort and cooperation by both the teacher and the pupil. While the teacher may be making every effort to convey quality information, the student may not understand how to capitalize on it. The professional would be well advised to prepare an instruction sheet for his students on "How To Take A Lesson." Dr. Richard Coop in the January 1987 *Golf Illustrated* makes seven points worthy of consideration by a student taking golf instruction. The following comments are a summary of his more complete text:

1. *Agree on instructional objectives with your professional* — Set a goal, put a time frame on it, consider your ability and how much time and effort you will devote to the undertaking.
2. *Be an active learner* — Ask questions. Learning is the learner's responsibility.
3. *Find a comfortable matchup of teaching style* and your learning style. To do this, ask yourself the following. How do you best learn? Do you like detail, or the big picture? Are you a better learner with words, pictures or feel? Can you handle criticism or do you need praise? Find a teacher who either fits your style or communicate your preferred style to the teacher you have.
4. *Avoid false modesty, but beware of pride and ego* — Be objective and honest when the professional asks you questions about your game. Don't hide weaknesses, including health or physical problems, or exaggerate strengths. Don't be afraid to ask questions if you don't understand.

5. *Avoid Noncompliance* — When you get a golfing prescription, take it, give it a chance.
6. *Practice, Practice, Practice* — Failure to practice or letting your practice become aimless and disorganized not only wastes the practice time, but the lesson time as well.
7. *Patience, Patience, Patience* — Don't expect miracle cures. Improvement takes time. Swing patterns are habits, and habits don't change quickly. (For additional thoughts on becoming a golfer, see Appendix 12-D)

The lesson thus becomes a team effort. The professional is sharing, directing and guiding, while the student needs, most of all, to be assimilating, striving and cooperating.

Illus 12-13
Where does the student have the greatest need? It may not be the full swing.

CHAPTER 13

The Importance of Practice, Drills & Teaching Aids

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In a successful lesson, the professional correctly diagnoses the student's problem, selects a valid correction and communicates that correction to help the student make better swings. But, if additional positive results are expected, the lesson is incomplete until another dimension is added. The student needs a practice assignment. Motor learning requires practice. Showing the pupil how and what to practice and bolstering his motivation to do so, are part of every well-constructed lesson. Why?

"It is not enough to know what to practice. The real key is getting yourself to do it."
Gary Player

The Strength of Habits

A habit is a difficult thing to change. Imagine a person who is accustomed to turning a doorknob clockwise with the right hand because he's been doing it all his life. Then someone says, "If you'll learn to turn the knob counterclockwise, it will take less effort and you'll do it faster." So the person tries. Each time, his first instinct is to put the "old clockwise move" on the knob, but he stops and thinks, "counterclockwise." After awhile, "counterclockwise" begins to replace "clockwise" as his habitual way of opening a door. *That is, until someone yells "FIRE!"* Our person runs to the door and "clockwises the knob," a complete reversion under pressure. Golf is a lot like this. We can adopt a technique change (*on the practice tee*), sometimes quickly, but will it "hold up" when we are on the course? What

Illus 13-1
The practice range may be crowded with serious competitors but the majority of golfers seldom practice. Do they need to be convinced that motor learning comes about only by practice?

appears to work on the range often fails when tested under the pressure of the game. How can golf students overcome this? The most powerful answer is practice — *overlearn*, if there is such a thing — but practice. Practice makes permanent. (Illus 13-1) To get a better understanding of this essential part of golf improvement, let's use a Who, What, Where, When, Why and How approach.

Who

Illus 13-2
Practice is essential both for improvement and maintenance of present skill.

Who should practice? Anybody and everybody who wishes to improve. In fact, anybody who wishes to simply retain his present skill level needs to practice. (Illus 13-2) Golfer, musician, artist, public speaker, surgeon, trial lawyer, mechanic, pilot, all must practice to perform well. If a player is going to compete, he will have to practice even more than for mere skill retention. (Illus 13-3) The improvement one gets will be in direct proportion to the time spent in practice, if:

1. what one practices is mechanically correct.
2. one's practice time is used properly — is it quality time or just time?
3. the time is divided into frequent periods rather than devoted to one long session.

What

A famous tour professional has commented that there aren't enough hours in the day to practice what one needs in order to stay on top of all parts of the game. Since there are considerably fewer hours a week available for most amateur golf students to practice than for professionals (to practice), the choice of what they practice becomes that much more important. If improved scoring is the objective, then the teacher should begin by encouraging his students to spend at least 50% of their practice time on the short game — *at least 50%.*

Illus 13-3
Strike a balance in practice between the time spent on full shots and the short game. Here Tom Watson works on some short iron shots under the experienced eye of Bryon Nelson.

Photo by Stephen Szurlej

A Practice Plan for The Serious Player

Practice sessions should have a purpose. The serious student should have a written schedule of *what* he is going to practice. In planning practice time (Schedule A) the player should concentrate on what he and his professional have agreed needs the most work. The student has a definite *what* to practice. The schedule may include both the short and long game, specific shots, remedial work, physical and psychological training, playing and information gathering. This is the type of schedule that someone contemplating a career in golf or who is training for national-level competition might follow. For other serious golfers with more modest objectives, or more serious time restrictions, this sample schedule can be used as a guide.

"Goal-less practice is worse than no practice at all because it builds a cavalier approach to the game."
Thomas Simek and Richard O'Brien (authors of Total Golf*)*

Schedule A
One Week Practice & Preparation Schedule (Professional Level)

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Short Game (Chip & Pitch)	1 hr.	2 hrs.	30 min.	2 hrs.	1 hr.	1 hr.	15 min.
Putting	30 min.	1 hr.	15 min.	1 hr.	X	2 hrs. (Pre-shot routine)	15 min.
Irons	30 min. (Short & Mid.)	1 hr. (Pre-shot routine)	15 min. (Short only)	1 hr.	30 min.	1 hr.	10 min.
Woods	15 min.	45 min. (Pre-shot routine)	15 min.	1 hr. Fairway	15 min.	30 min. (Pre-shot routine)	10 min.
Bunker Play	30 min.	15 min.	X	30 min.	15 min.	30 min.	X
Play & Course Mgmt.	9 holes	X	18 holes	9 holes	18 holes	9 holes	18 holes
Mental	Read golf & watch videos 1 hr.	Relaxation, meditate, & visualize 15 min.	Relaxation, meditate, & visualize 15 min.	Read golf & watch videos 1 hr.	X	Relaxation, meditate & visualize 15 min.	Read Rules 30 min.
Physical	Aerobics & stretching 1 hr.	Strength 30 min.	Aerobics & stretching 1 hr.	Strength 30 min.	Aerobics & stretching 1 hr.	Strength 30 min.	REST
Miscellaneous	Trouble shots, (select) trajectory, curving the ball, uneven lies, left-handed, recordkeeping, rough 15 min.	Trouble shots & left-handed	X	Uneven lies 20 min.	Take equip. for lie angle check	Curving the ball	Recordkeeping & schedule
Notes	Run errands	Shopping	X	Haircut	X	Errands	

Practice for the Weekend Amateur

The majority of golfers practice only occasionally. (f 13-1) But even the avid amateurs will find that time constraints limit their opportunities. The *what* to practice for them has to be more limited in scope than for the aspiring tournament player. Here are some suggestions:

f 13-1 Statistics indicate that 47% of high handicappers **never** *practice.*

1. Make practice swings whenever possible. Place old clubs around the house in various locations so that it will be convenient to pick one up and swing it.
2. Without a club, make imaginary swings with the arms and hands in front of a mirror or window. Picture and feel the correct positions.
3. Grip a club while watching television. Swing during commercials.
4. Create a practice area in the house or office which makes practice more convenient. Include short game practice.

"A golfer should put in the same amount of time on the practice tee as he does playing."
Lee Trevino

Schedule B is for the week-end player who wants to improve but has full-time work, family or other obligations. (For a list of personal golf objectives for competition see Appendix 13-A.)

Schedule B
One Week Practice & Preparation Schedule (Amateur - Moderate Level)

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
	Health Club Workout 12:30-1:30, include golf drills Putt on rug 15 min.	Evening Swing club at home in front of mirror or window.	Health Club Workout 12:30-1:30, include golf drills Read golf magazine, watch a video 9:00-10:30 p.m.	Evening Swing club or chip.	Health Club Workout 12:30-1:30, include golf drills Practice range 5:00-6:30 p.m.	Practice 1 hr. and play 18 holes	Watch Golf Tournament T.V. Practice 30 min. Play 9 holes Sun. evening
Notes	Work on keeping left wrist from breaking down in putting stroke		Watch for preshot routine in video		Practice keeping the driver in play		

Where

The obvious place to practice is at the "golf range," referred to for many years as the "driving range." Of course, all practice needn't be confined to that area. Consider the following possibilities:

1. *At home* (outside) — If a survey were taken, one might be surprised at how many players who do practice do some of their practice at home. A golfer can chip, pitch or make a full swing in the yard. Home nets and pitching targets are made for that very activity. (Illus 13-4) Former tour star Ed Sneed grooved his swing as a youngster by watching himself in front of a large window in the family home. Bob Toski built a miniature course in his yard as did Hall of Famer Chick Evans. Jack Nicklaus has his own green and bunker in the backyard for family practice on the short game.
2. *At home* (inside) — Basements with high ceilings, or garages can become practice ranges. Who can say how many golfers in the past have used the front room carpet as simulated turf from which to pitch onto a sofa or chair "greens" and then sunk the putt in a glass "cup" placed on the floor? Video offers a new and exciting opportunity for a vicarious type of practice at home. Watching with club in hand can become an effective way to learn and practice.
3. *At work* — If practice is possible on the job, a golf club placed in the corner which can easily be picked up and swung during a free moment may be a viable means of stress reduction or a stimulating break from a tedious task.
4. *In the car* — Audiotapes on golf can provide another medium for learning. There are several commercial tapes on the market that provide golf tips and coaching. One amateur in California who was a busy physician had his professional give him a two-hour lesson with the most important points put on audiotape. The "doc" listened regularly for several weeks to that personal audio lesson until the points were so clear that his performance improved even though he'd had no ball-hitting practice.
5. *At the health club* — If some of your golfers regularly "work-out" at a health club or gymnasium, recommend that they leave a golf club or a specially weighted training club stored there for practice swinging during a workout session.

These examples highlight the point that practice can take place in many different locations. Suggest that your student modify his daily routine to find more practice time using one of these suggested alternatives. If a player uses his imagination, he'll find a place to practice. (Illus 13-5) Mental practice, in particular, is always possible since it can be done anywhere, almost anytime.

Illus 13-4
Ernest Jones, one of golf's great teachers, felt that learning a swing indoors could be more effective than outdoors because the student focused on the movement rather than the ball flight.
Photo courtesy of Golf World, U.S.

"I never hit a shot, not even in practice without having a very sharp, in-focus picture of it in my head."
Jack Nicklaus

Mental Practice

"The purpose of practice is to tell the brain as accurately as possible, how to organize the movements of the body."
John Syer & Christopher Connally

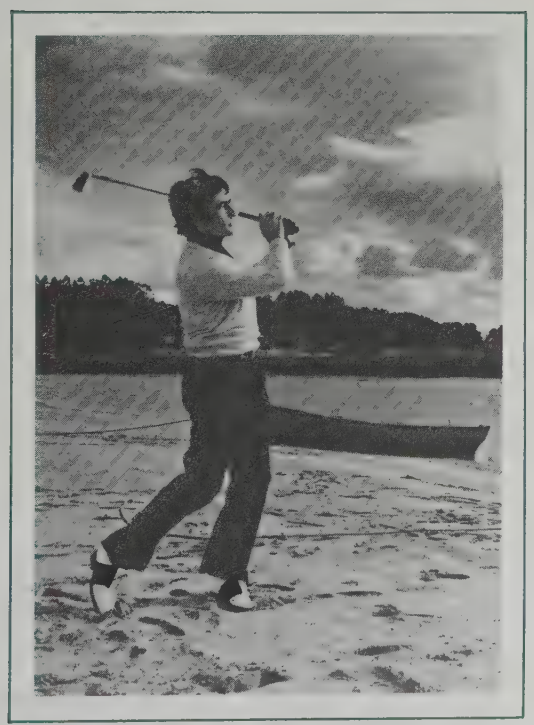
Expansion of the mental practice concept will be the next giant stride in learning golf. Consider the stories that came from prisoners of war in Vietnam. Men who were incarcerated for several years learned to play a guitar by practicing chording on a homemade "stick and box with strings." There were no sounds, but they learned to play. Musical pieces were also performed on a "wooden board piano" with keys drawn on the board. There was no key movement and no sound, but the pupils mentally "heard" the songs and they learned to play. Closer to our subject of golf is the story of a U.S. Military officer who was in a prisoner-of-war camp for six years and carried a four handicap before his capture. Although he did not hit a golf shot while he was imprisioned he did practice mentally every day. Three weeks after his release, he shot a 75 in a pro-am. *He hadn't hit a ball in six years, but he had practiced — in his mind!* Where can people practice? Anywhere!

"Practice is the only golf advice that is good for everybody."
Arnold Palmer

When Should the Player Practice?

The professional should have his students practice whenever they can. Frequent short practice sessions are proven by research to be more productive than an equal amount of time spent in only one session. A productive time for practice can be right after a lesson while the ideas are fresh and the student is trying to acquire a new feel. What about before and after a round? Before a round, it is usually better to focus on warm-up rather than on practice, although the player can use this pre-play time to rehearse and practice his routine for various shots. After a round is the ideal time to work on a particular shot which may have caused the player a problem on the course.

Playing and practicing before going to work is not very common, but may be possible when the course is close and the workplace easily reached. Thirty minutes to an hour of regular practice is amazingly effective. Lunchtime practice is a possibility, even in the cities, if indoor golf centers or a nearby range is available. After work is the favorite among most golfers who work normal hours. If the range at the player's home course closes at 5:30 p.m., but it doesn't get dark until 9:30 p.m., that player loses his most convenient chance to use the practice facility. Golf professionals should consider this circumstance in setting hours for the range. If economically feasible, later closing hours can substantially increase the opportunity for more people to practice.



Illus 13-5
By using ones imagination practice can be accomplished almost anywhere.
Photo courtesy of Golf World, U.S.

How To Practice

The most important advice that can be given about practice other than to do it is: *make it as similar as possible to the real thing,* actual play. How can this be accomplished?

1. Make it competitive. Suggest to the student that he set goals; for example, six out of ten balls from the bunker onto the green, successive putts from one to ten feet, or eight out of ten drives between two target trees. Practice with someone else of similar or higher skill and have contests — closest to the cup, best in line with the flag, least strokes up and down. On occasion, have the student practice with only one ball around the green. No shag bag or bucket, just one ball played from various locations, until the player gets it in the hole as he must on the course. The number of ups and downs in two strokes from ten different starting positions becomes a contest and, therefore, provides competitive pressure similar to that experienced in a round of golf.
2. Create realistic situations. Don't let the student always take preferred lies. Play balls where they land, particularly around the green. Let the student hit shots from uneven lies and out of the rough. Practice the full swing by playing a shot with one club, then another club and then another, as is done in a round of golf.
3. Have the player practice as he would in play. Sloppy practice habits will produce sloppy play on the course. This takes a lot of discipline, but ask the student to treat each practice shot as though he were on the course. That means to picture or visualize the shot first, make the images vivid, complete the routine, swing and then assess the result.
4. Make sure the student practices to a target. *Hitting balls is exercise, playing to a target is practice.* Aim is so crucial to the result, the player must have something at which he aims during practice. (Illus 13-6)
5. When working on changing a position or movement in the swing, it may be more effective to not make the whole swing, but rather work on the part that's defective. Isolate it and repeat it correctly until it can blend naturally into the whole.

Illus 13-6
Golf is a target game, so practice should always include targets.

Why Should One Practice?

Practicing to establish a correct and lasting "groove" is like running a trickle of water down a dirt bank. With enough volume and repetition, the water makes a channel. The longer the water runs down that bank, the deeper the channel gets. If it stops running, the channel begins to fill in. Sometimes the channel is not the most direct one and the water takes a circuitous route. Eventually, the water gets to the bottom, even though it takes longer and the route is inefficient. That circuitous channel, like a technically flawed swing, can be altered to become more direct and efficient, but a lot of water

"I figure practice puts your brains in your muscles."

Sam Snead

Illus 13-7
There wouldn't be any seekers of Jack Nicklaus's autograph had he not practiced countless hours to develop his skills.
Photo by Stephen Szurlej

must be run down the new route before its course becomes set. For awhile it may go in both directions. It works much the same for changing the course of a golf swing.

The analogy demonstrates that if one wants to groove a swing, *many* swings must be put in that groove. The swings can be on the course, at the range, in the basement or in the mind, but they have to be made and they have to be made correctly. Some swings are mechanically complex, others more efficient, but all swings can be changed. It's just not easy. It takes repetition and practice. In the words of Jack Nicklaus, player of the century, "Nobody — but nobody — has ever become really proficient at golf without practice." (Illus 13-7)

Natural Ability Isn't Enough

Golf may be the greatest game for practicers. Some good golfers may be "naturals," born with exceptional physical talents, but proficient players can also be developed from people with very modest talent. The natural athlete may find golf more frustrating than expected when he doesn't experience immediate success. This lack of quick success frequently leads to quitting and seeking another activity. The athlete's less-talented counterpart who is patient and does not expect overnight success, can make gradual improvement with persistence and practice, until one day he could be the club champion.

Former PGA Champion and Ryder Cup Player Jerry Barber was certainly in this latter category. He epitomized the person with average talent and great determination who devoted himself to practicing hour after hour. It is easy to see why after someone called him "lucky," Barber made the statement, "Yes, and the more I practice, the luckier I get." (Illus 13-8)

Peter G. Cranford in his book *The Winning Touch in Golf* gives further insight into the value of practice with this story told by a member from his club. "Although Betsy Rawls, the great woman golfer (now a PGA World Golf Hall of Fame member), was endowed with considerable natural talent, much of her success was due to her early attitude toward practice. While the rest of us would be playing at the old Austin Country Club, she would take her habitual stand under a tree on the 13th hole and hit balls by the hour. It was only on rare occasions that she would play with us, even though she was already the equal of most male golfers. Before we realized it, she was the U.S. Women's Open Champion."

Illus 13-8
One of the games most diligent practicers was Jerry Barker. His physical talents were limited but his determination was not. He demonstrated that determination by untiring practice, particularly in the short game.

Selling Golfers on Practice

One of the most difficult, yet important, jobs the professional must accomplish is selling his students on practice. (Appendix 13-A) Why do people involved in other motor disciplines such as playing a musical instrument expect to improve only if they apply the axiom of *effort and reward,* while golfers look for miracles? The golfer must be educated to the reality that there are no swing secrets or instant methods to achieve competency.

"The player who expects a lesson to 'take' without subsequent practice just isn't being honest with himself or fair to his professional."

Gary Player

Ben Hogan once said to a young player attempting to garner a thought from him on how to become a champion golfer, "Son, do you have a practice bag?"

"Yes sir," was the young player's reply.

"Use it!" was Hogan's advice.

General Observations on Practice

1. Selecting wind conditions in which to practice is important. The most desirable wind conditions are: wind into the player, right-to-left, or no wind at all. Less desirable is a following wind, and the least desirable is left-to-right. A left-to-right wind blows the ball off-line to the right. To this the body instinctively reacts by releasing the "hit" prematurely and swinging outside-in to the left of target. In downwind practice the drawback is that the player's errors are not always evident. On the plus side, a right-to-left wind encourages an inside path to the ball and into the wind clearly would magnify error.
2. One purpose of practice is to develop confidence. If the time available for full-shot practice is quite limited, one should just practice making his best swing and work on establishing a routine until both routine and swing are indelible.
3. Practicing golf can be a very pleasant, relaxing experience as well as a mild physical workout. One could call it *work;* but if so, it's most enjoyable work. Teach it in that way.
4. An interesting practice experience on the course to test a player's consistency and patience is a "worst-ball scramble." The player finds a quiet time on the course when he can play two balls with management approval. After the tee shots, he selects the poorer one and plays two shots from there. Again he selects the poorer. This will direct the player's attention to work on consistency. One should practice the worst-ball format only rarely, because it can be as hard on a player's confidence as breaking 80 is for a scratch player. It's better to experience "best-ball" practice if one needs to build positive feelings.

"The golf swing is muscle memory."

Patty Berg

(Editor's Note: Muscles do not have the ability to remember. But the neuromuscular system's pathways which carry messages from the brain can be developed to be more efficient through practice.)

5. When full swing practice time is *limited* the psychology of hitting the easier clubs to build confidence makes sense. When *longer* practice periods are available, a player should focus on his weaknesses. The only way to overcome a weakness is to practice the correction, probably with the clubs which have given him the least success.

6. The professional should encourage his students to practice in the following manner. Have them deposit the bucket or bag of practice balls at least one step away so there is no thoughtless, rapid-fire swinging. Having to take a step to rake the ball in is more conducive to completing a pre-shot routine.

7. Times *not to* practice are:

   a. When one is tired. Fatigue makes people sloppy. It also promotes more chance for error, poorly hit shots, and a loss of confidence.

   b. When one loses interest. This is when bad habits creep in.

   c. In bad weather conditions, which can cause one to alter the swing.

   d. If things are going poorly and it seems progress isn't being made. Tomorrow is another day. That may be all that is needed.

8. There are also other times when practice can make one worse. An example of this is in putting. If one has learned a solid technique, but then begins experimenting with other methods, he can lose what he has. This kind of experimentation can cause confusion, tentativeness and a loss of confidence.

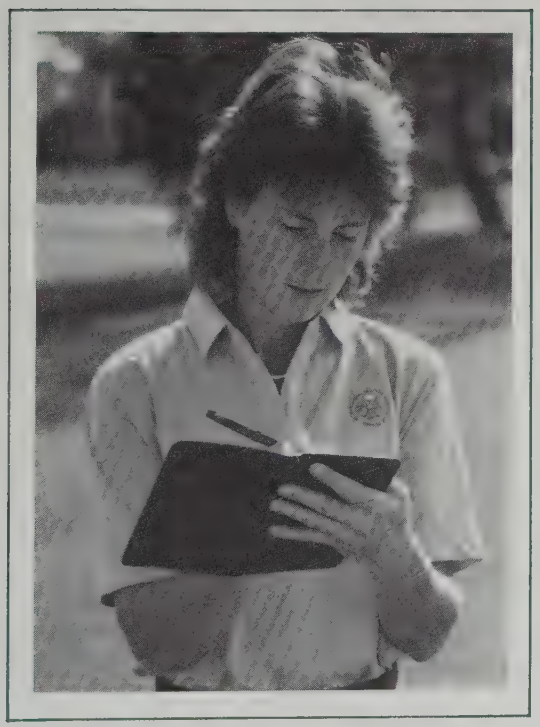
9. The professional should direct his students not to spend valuable practice time on shots that rarely confront them. They can try these occasionally, but to spend 30 minutes around the practice green hitting super cut shots that rise almost vertically and descend the same way is wasting good pitching and chipping practice time.

10. Avoid long practice sessions before play. Playing when tired leads to poor performance and a loss of confidence.

11. Finish a practice session on a good note — several consecutive, successful shots.

12. Practice a varied club selection by teeing off with a club other than the driver, such as a #3, #5, or #7 iron. It makes a familiar course offer entirely new challenges.

13. Keeping a log or record book of practice provides a means for expressing, understanding and remembering what was learned at the session. (Illus 13-9) A log is a great reference for recalling what one was working on, including his feelings, during a particular practice time. This bit of practice "history" may help to recapture one of those inspirational moments that we occasionally experience, then later find hard to recall.



Illus 13-9
A practice log can capture useful ideas, feelings, insights and adjustments that may otherwise get lost or forgotten.

Drills

Think of a sport other than golf. Now picture a practice session for that sport. One of the images that comes to mind is the performer either putting himself, or being put through, a series of drills. If your image was a baseball practice, the coach may have been observing the infield practicing their moves in different game situations. They might "walk through" how and when the pitcher covers first base, where each player goes on a "run-down" between 3rd base and home plate or who calls the play on a pop-up above the mound. Why does a coach do this? So that player reactions under game conditions will be appropriate. This correct reaction becomes habit through repeated drills.

Drills, done correctly, have value in learning golf skills. They can:

1. cure specific problems or weaknesses by replacing bad habits with good ones. (Illus 13-10)
2. teach position, motion and feel.
3. isolate a portion of the swing or a body segment on which to train.
4. reinforce existing good habits.
5. provide exercise while practicing technique.

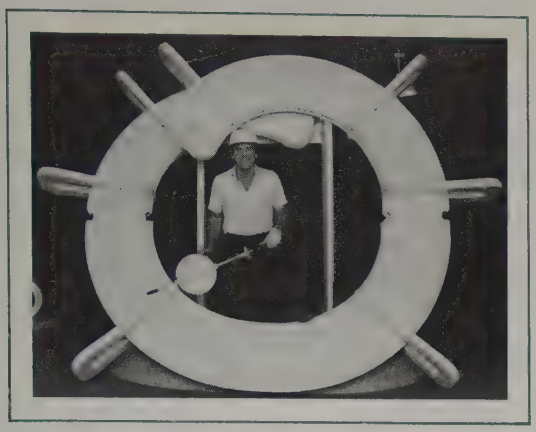
"Done correctly" is an important phrase. A student not fully understanding a drill may practice incorrectly. This will result in having to undo the damage again before moving on, thus wasting precious time. When the professional assigns drills he must present them clearly, either on paper or by demonstration. Then he should ask the student to demonstrate the drills before leaving the lesson tee. Drills to the golfer, like scales to the musician, are forever. That is why one sees top tour players rehearsing positions and using drills that are given to beginners in those first weeks of instruction. As long as one is trying to improve or maintain his skills, he must do his exercises. Performance deteriorates when practice stops.

There are hundreds of drills with different objectives and multiple variations of each. A limited list of drills based on laws and principles, as well as drills for specific shots, plus games and contests are listed in Appendix 13-B. Crediting the originator of every drill would be an impossible task. There are drills used today which are modifications of those depicted in books written in the 1800s. Let us give thanks to all the teachers of golf who have contributed drills to the game. Those who see drills listed which they feel are their original creation, we thank you in particular. (f 13-2)

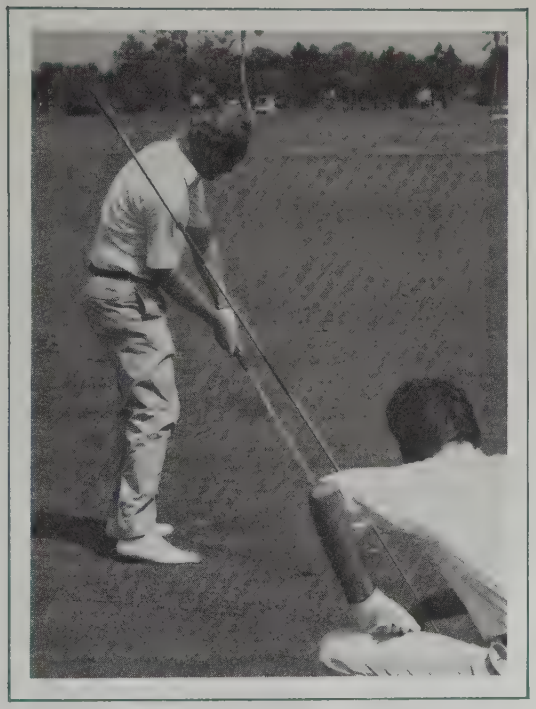
Illus 13-10
When a student has the problem of getting the weight to the right side in the backswing, a drill having them lift the left foot can give them a better feeling for it.

Illus 13-11
Minnesota PGA member Rod Lidenberg uses "home-made learning aids"; boards for aim and set-up and a broom for demonstrating release.

f 13-2 The TLM (Training Log Method) book mentioned in Chapter 12 contains numerous drills to develop a sound shot-making technique.



Illus 13-12
Products that are more highly engineered will obviously be more expensive than those that are simpler.



Illus 13-13
These stacked shafts can be set up and taken down in a matter of seconds.

Any object or device which can assist the teacher in teaching and the student in learning could be called a learning aid. (Illus 13-11) Some are useful, others frivolous. To be able to distinguish between the beneficial and useless is not always easy without first being able to test it.

To evaluate a learning aid, the following criteria could apply:

1. Is it valid? — Is the premise upon which the learning aid is based actually helpful to the golfer? For example: A device which keeps the left arm ramrod straight in the backswing may actually produce additional tension in the arm and shoulder and produce weaker golf shots than before its use.
2. Does it do what it says it can do? — If the product claims to keep one's left wrist flat, does it really do this or just look like it does?
3. How reliable is it? — Do you get consistent results from the product? If it measures clubhead speed and other swing components, for example, and a player produces two identical swings, will the same readings appear?
4. How well is it made? — Does the product meet all the previously mentioned criteria, but fall apart after two weeks of use?
5. What about the cost? — Based on how useful it is in the learning process, is it worth the price? (Illus 13-12)
6. Is it easy to set up and use? — If it is a marvelous piece of equipment, but requires considerable time to assemble or activate, and in addition, is complicated or highly sensitive, the hassle may not be worth it. (Illus 13-13)

In brief, learning aids should be simple, effective and reasonably priced. The teacher of golf can find many learning products advertised in golf trade and consumer magazines. (f 13-3) Two companies that deal in a variety of learning devices are:

The Golf Works
Ralph Maltby Enterprises, Inc.
4820 Jacksontown Road
Newark, OH 43055
(614) 323-4193
(800) 848-8358

Practice House Golf, Inc.
3801 W. Linden Avenue
P.O. Box 1496
South Bend, IN 46624
(219) 288-4991
(800) 348-5162

f 13-3 A collection of over 200 golf learning aids and 116 drills are demonstrated on a series of six instructional videos called Gator Golf Instructional Video Library by PGA member Wally Armstrong. Contact Gator Golf, P.O. Box 1911, Maitland, FL 32751.

Video

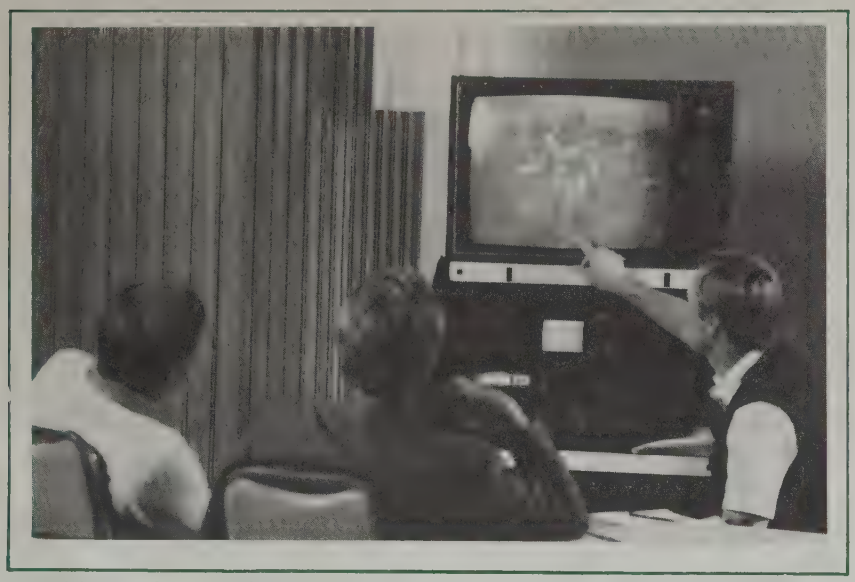
The use of video in golf instruction is certainly not new. Yet, it is surprising how many golfers have never seen their swing on television and how many teachers of golf do not use this technology.

"Practice doesn't make perfect — practice makes permanent."

Anon

Why use video? Because sight is one of the most effective senses in teaching motor skills. For years, young caddies learned the game by watching the swings of their employers. This was visual learning and it worked for Hagen, Hogan, Sarazen, Snead, Nelson and a host of others.

Pictures from a magazine, a mirror, or the professional's demonstrations are all forms of visual learning. But capturing the swing in motion and having immediate feedback are great advantages available most easily with video. The "proof" in pictures can kill the doubt of a skeptic and add credibility to the teacher. (Illus 13-14) Comments like, "My God, I really do lock that knee!" or "You're right! My weight is reversing on the backswing...It sure didn't feel that way," quickly point up one of the best reasons for using video. It is objective visual proof. In fact, some professionals categorically state that without pictures, "they are just guessing."



Illus 13-14
"Seeing is believing" — The student's belief is reinforced when the professional can show the student as well as tell him.
Photo by Jeff McBride

In addition, having the equipment establishes the teacher as being more professional...providing of course, he uses it in a professional way. Certain decisions should be made before hurrying out to buy video equipment. The teacher should ask himself these questions:

- Will this enhance my teaching effectiveness?
- Will it help my students?
- How much can I afford to invest, both in time and money?
- Is this to be a profit center? If so, how do I make it pay for itself?
- How will I market the service? What will I charge?

Some professionals find that taping major tournaments and playing them back in the men's grill or dining room puts their equipment to good extra use. Shooting special events like the club invitational, the county championship or the city father-son/mother-daughter tournament and playing them back to the group is another possibility.

The retrieval of desired sequences can be made more quickly and easily by accurate cataloging and record keeping of tapes. The best method is to number code them. One professional inputs the information into his shop computer, having it referenced by student name, subject or event.

Using instructional tapes that the professional and his staff have personally prepared or have purchased can be of great help in private or group lessons. If the students have access to these resources, they can view them while the professional and his staff are busy with other duties. A classroom set-up is ideal for the use of videotape training with groups. This is especially effective in the winter or off-season months when the professional is looking for ways to keep their interest.

If one does buy the video equipment, take the time to read the operating instructions and maintenance guide thoroughly, even if he has video experience. Some buyers are so excited about their new "toy" that they learn only a few basics or rely on old information and wind up never finding out all that the equipment can do.

Most importantly, develop a plan for marketing and using the equipment before making a decision to buy. Outline the basic policies and procedures for use: where it will be stored, how it will be transported, the pricing structure, who can use it, how it will be advertised. What will it be used for and when might one plan to sell or trade up? If it looks good on paper, then the right decision has probably been made. (See Appendix 13-C)

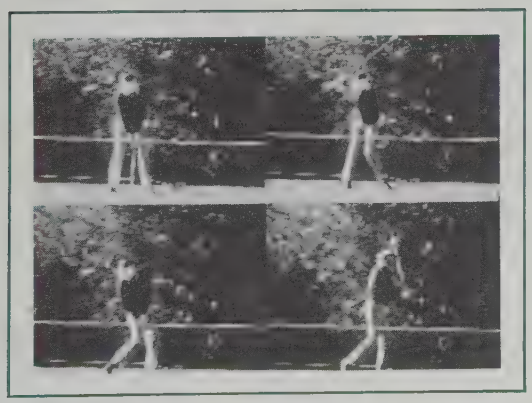
Equipment and Set-Up

Video equipment available for use in golf instruction has gone through a revolution in the past few years. Electronically shuttered cameras and camcorders with shutter speeds from 1/1000th to 1/4000th of a second are now available on the consumer and professional video market and are quite affordable with price ranges from $1,000 to $2,500. (Mechanical rotary-shuttered video cameras have been available for perhaps the last 10 years, but these cameras have been very expensive and have been, therefore, limited in use.)

In addition to the faster-shuttered cameras, digital VCR's have become available which offer stable still picture, still advance and slow-motion effects which may be copied with a second VCR.

Digital VCR's may have other digital effects which are useful such as "picture-in-picture," "multiple screen," "frame memory" and "zoom." (Illus 13-15) Some of the new VCR's will also play back 60 pictures for each second of recording rather than 30 pictures, which is standard.

The portable special effects generator (or SEG's) is another unit which has recently become available and allows the use of multiple camera split-screen which provides the golf instructor with depth of field in analyzing the golf swing. SEG's with two to four camera



Illus 13-15
Multiple images can be a part of a special effects equipment package.
Photo by Dr. Jim Suttie

inputs are commonly available and will allow the selection of any single camera or any two of the four cameras in split-screen.

Digital "quad" units are similar to the above but divide the screen into four quadrants with a separate camera picture in each corner or a choice of each camera independently in full-screen.

Digital "mixers" are another important type of video equipment which has become available. These units will allow split-screen effects using two VCR's for input in addition to a combination of one VCR with a camera or two cameras together. Using two VCR's, the student's tape can be shown on one side of the screen with the tape of the role model on the other. Each VCR can be controlled independently to give the same rate slow-motion or to give simultaneous step-by-step still advance. As before, the resulting picture may be copied without additional equipment.

Finally, in discussing equipment, the two formats, Super VHS and Beta ED, must be mentioned. Each of these greatly increase the resolution and color fidelity of video, especially when the video is edited or copied. These benefits will be apparent even when the final copy for the student's use must be made in standard VHS, Beta or 8mm.

What is demonstrated in the following description and pictures is a reasonably sophisticated system from which the professional may choose part or all for his facility. The idea in presenting this model was to expand the thinking of the teacher as to what is possible. (f 13-4) Illus 13-16 shows a portable multiple camera system for use on the practice tee. PGA member Dr. Jim Suttie and student are shown at Pine Needles Resort in North Carolina. The portable VCR, monitor, SEG and battery power supply have been mounted on a Bag Boy golf cart.

f 13-4 *A portable, simple to operate system that is being used by some professionals is the Sony 8mm Caddy-Cam™ system. However, there are other choices, particularly in the more popular VHS mode. Quixote Labs (Mr. Don Krog), 2455 Forest Ave., Boulder, CO 80302, (303) 442-8110, is one source offering consulting services on setting up viable systems for golf instruction.*

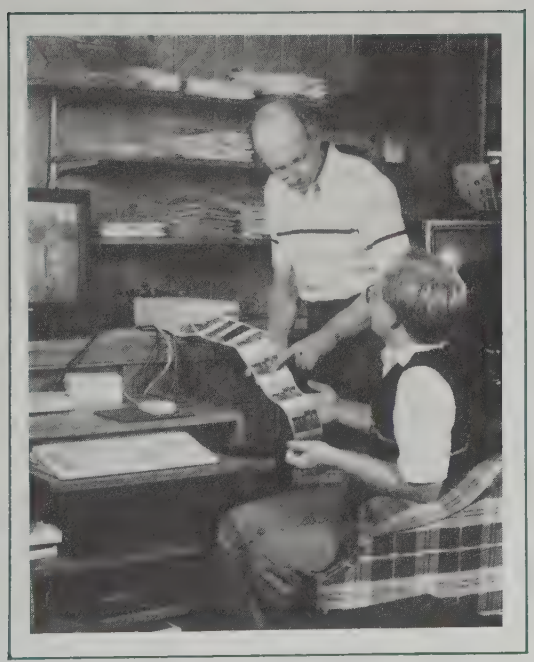
Illus 13-16
A two camera setup for the more sophisticated taping sessions. Note the tape-lines on the ground for camera alignment and the additional microphone to record the instructor's comments.
Photo by Dr. Jim Suttie

The portable VCR used on the practice tee should be capable of excellent video quality since the tape will be used as a master for copying and it should also be capable of slow-motion playback as well as still picture and still picture advance.

The portable monitor used on the practice tee requires high brightness and high contrast and should be equipped with a hood to shield the screen from direct sunlight. Screen filters and gridded overlays are also useful as are dry erase pens for diagramming.

Illus 13-17 depicts the classroom playback setup and the computer work station. Dr. Suttie is shown with Cliff Walzak, Assistant Golf Professional at Pine Needles. The two VCRs are located in the storage cabinet below the computer keyboard.

The playback VCR, as noted before, should be of the digital effects type with 60 pictures per second in slow-motion and still advance replay.



Illus 13-17
PGA member Dr. Jim Suttie demonstrates a point to fellow professional Cliff Wolzak on the hard copy printout from selected images on the screen.

Photo by Dr. Jim Suttie

A remote control used with this unit or an editing controller used with this unit and the edit VCR simplify operation and can be located for easy access on the console with the computer keyboard and mouse.

The computer can be operated by means of a mouse or with a light pen, whichever the operator prefers. Various programs are available for the computer which can be used to add titles as well as graphic overlays to the edited tape. (Illus 13-18) Videowriters are also available and can be used in place of the computer to perform graphic overlays.

"If I miss one day's practice I know it; if I miss two days' practice the spectators know it, and if I miss three days' the world knows it."

Ben Hogan

Illus 13-18
Note the use of graphic overlays which can be applied electronically so that visual reference points can be established.
Photo by Dr. Jim Suttie

Several types of printers can be used to provide hard copies of the combined video with graphics or of either the video or graphics alone. Cost of copies varies with the type of printer and ranges from about four cents to approximately $1.00.

Although a standard television can be used as a large-screen display unit, most of these have poor resolution when connected to the VCR through the RF or antenna input. In addition, most will have jitter and double imaging in slow or stop motion playback from the VCR. This problem is especially true with the large-screen projection-type televisions. The jitter problem can be solved by using a professional grade monitor which has a switchable AFC circuit designed to stabilize the still frame and slow-motion signal, by adding an upstream video corrector if the VCR's are analog or by matching the monitor to the VCRs at the time of purchase.

The edit VCR should have a rotary or "flying" erase head to prevent "rainbowing" at the edit points. Also, to prevent frame glitches at the edit points, either an edit controller or a VCR equipped with a servo system will be required. Finally, the edit VCR should be capable of performing both audio and video dubs.

Two additional items which are not shown are the digital "mixer" which was previously discussed and a "Digital Adaptor" which provides the digital effects portion of the VCR as a separate downstream unit. This adaptor can be used to mix the multiple screen images from more than one tape since it is separate from the input VCR.

The audio portion of the tapes will be lost when the tapes are copied in slow or stop motion, but audio should, by no means, be overlooked.

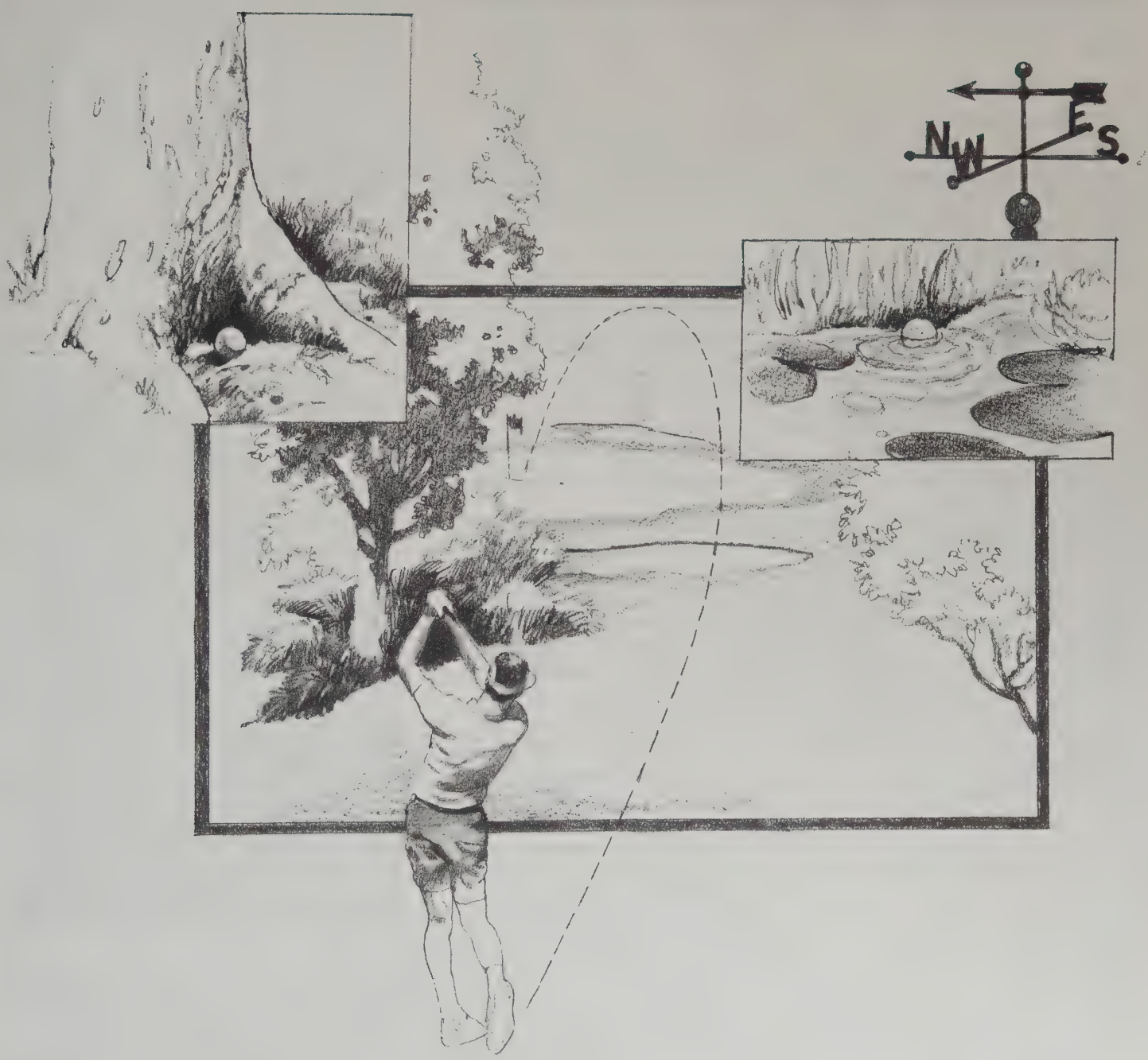
An auxiliary microphone is recommended for use on the practice tee to be certain that the instructor's comments on the original tape are always audible, since the microphones installed on the cameras and camcorders are always pointed toward the subject or student. If the VCR has stereo capability, this microphone can be connected to a separate audio channel on the tape.

The auxiliary microphone can also be used to audio dub instruction over the portion of the edited tapes that do not contain audio. This can be accomplished after the fact at the convenience of the instructor or during the fact when both the instructor's comments and the student's questions can be preserved.

Interpreting the information received and then communicating it clearly to the student is the instructor's responsibility. A very useful system of interpretation with graphic assistance is demonstrated in Appendix 13-D. Moving comfortably into the world of video to enhance the teaching process will move the teacher another step forward toward teaching success.

CHAPTER 14

Special Shots & Unusual Conditions



CHAPTER 14

Special Shots & Unusual Conditions

One of the fascinating elements of golf is that conditions are constantly changing, from one course to the next, one day to the next and one hour to the next. The terrain, the grasses, sand texture, course layout, wind, temperature fluctuations, rain, ground firmness, growing trees and foliage all contribute toward making the playing of golf a continually changing and challenging experience. Learning to handle a variety of conditions is a requisite for being a competent player. Knowing how to teach someone how to overcome unusual conditions with special shots is a requisite for being a competent teacher.

Uneven Lies

Most golf is practiced on "flat as a pancake" terrain, but hardly any of it is played there. The four most frequently encountered uneven lies are uphill, downhill and the two sidehill (ball above the feet and below the feet). Here are the basic considerations and adjustments for these four:

Sidehill — Ball Above The Feet

All uneven lies create a tendency for the player to err, resulting in incorrect distance, faulty direction or both. When the ball is *above the player's feet,* on the side of a hill, the three most frequent errors are *chunking, pulling* and *hooking.* The chunk is easy to understand. The ball is elevated and closer to the player. This requires the player to either assume a different body tilt than that to which he is accustomed and/or to shorten his hand position on the grip. (Illus 14-1) If neither is done the club will hit the ground first rather than the ball.

The other two errors that are frequently made when the ball is above the feet are pulling and hooking. A simple but graphic illustration the professional can give to his students is to take a putter and sole it so there is literally zero degrees of loft in the face and so that it is "looking" or facing at right angles to the target. Ask the student where the ball will go if it is struck with the face in this position. "To the target," is the answer. Now elevate the putter 1½ to 2 feet in the air keeping zero degrees of loft in the face. Ask where the ball will go if struck now. The answer again is, "to the target." Next take a lofted iron, like a #9, and repeat the previous routine. With the #9 soled normally, the answer to where the ball will go is, "to the target." But when it is elevated, the pupil can readily see that the loft in the face when tilted upward is now directed to the left. The ball will *not go to* the target, but to a spot quite a bit to the left of it. With the ball higher than the feet, a more horizontal swing plane is created promoting more hand

Illus 14-1
Note the body tilt is more upright and the player (Jerry Pate) has choked down on the grip when the ball is higher than his feet.
Photo courtesy of Golf Digest

and forearm rotation. With an inside swing path added to a clubface "looking" left it is easy to see why a pull or pull hook from this lie is a common tendency. Another factor which encourages a pull to accompany the hook is gravity. Whenever a player is on uneven terrain, gravity will try to pull him toward the lower point of the slope. In this case, the low point is behind him so the pull is backwards. Because of the backward pull of gravity, the swing path can travel several degrees to the left, resulting in a pulled shot. Here are some solutions the teacher can use to offset these three negative tendencies when the ball is positioned above the feet:

1. Stand as perpendicular to the lie as possible so the body position in relation to the ground approximates a normal lie, yet the weight favors the balls of the feet.
2. Choke down on the club so the club can clear the ground.
3. Position the ball near the middle of the stance since weight transfer won't be as strong.
4. Keep the suspension point (the distance from the ground to the base of the neck) constant to maintain balance.
5. Take a couple of practice swings to get the feeling of clearing the ground at the right height.
6. Allow for the pull or hook by aiming to the right. The steeper the ball lies, the more the player must compensate.
7. The player should swing within himself. Trying to hit hard from an awkward lie is difficult. Always swing with less than full effort. This may require using a stronger club to provide the added distance needed.

Illus 14-2
When the ball is lower than the feet it takes an adjusted address position (sitting deeper), a full length grip and a concerted effort to stay seated through the shot.
Photo courtesy of Golf Digest

Uneven Lies — Ball Below the Feet

Playing a shot when the ball is lying *lower than the feet* is one of the harder shots in golf and it's easy to understand why (Illus 14-2). Beginning golfers find it easier to contact the ball if it's raised in the air on a tee, more difficult when it's on the ground. Now, in the ball below the feet lie, it's actually *lower* than ground level. The tendency is for the ball to be topped, pushed or push-sliced. A face position demonstration similar to the one given with the ball above the feet can be shown to the student. The procedure is the same, but the result reversed. Show the putter first where the face remains square when tilted, then tilt the toe of the #9 iron downward and the loft in the face will "look" to the right. To make the proper compensations for a ball positioned below the feet the player should:

1. Go to the full length on the grip.
2. Stand close enough to the ball to easily reach it with the clubhead.

3. Angle the body close to perpendicular with the ground, but sit deeper in the knees at address and let the weight feel more on the heels.
4. Keep the suspension radius constant. Don't pull up or fall forward.
5. Aim to the left an amount relative to the tilt of the clubface and allow the ball to go to the right.

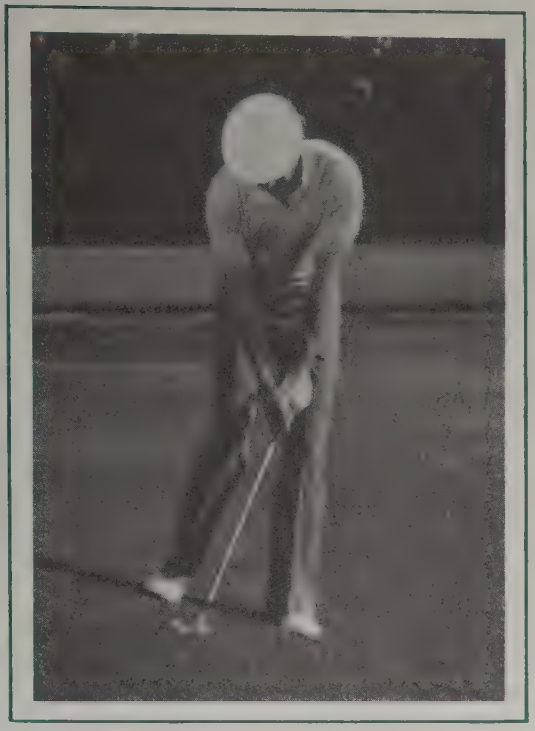
How much should a player aim right or left on these shots? The answer will come from practice, but here is a way that may help. After he has selected a club, let the student mimic with the palm of his hand in the air the club's loft and the soling of it on uneven terrain. Have him carefully note the amount of deflection the face presents from the target line. Let him compensate that amount plus a bit more for the curve, then swing naturally.

Uphill Lies

The most common tendencies from the *uphill lie* are pulling, chunking and underclubbing (Illus 14-3). This is due primarily to the force of gravity attracting the player toward the low ground or the player's right. It is difficult from the uphill lie for the golfer to transfer his weight to the front foot as he normally would. When the weight stays back, the swing path travels left, causing a pulled shot. In addition, the natural slope of the terrain tilts the golfer's stance upward, adding loft to the face of the club. This causes the ball to go a higher and a shorter distance. Increasing this tendency even further is the reluctance of the weight to transfer left, allowing the head end of the club to pass the grip end too soon. To neutralize these tendencies when faced with an uphill lie the player should:

1. Set-up basically perpendicular to the ground level but with a bit more focus of weight to the left. Resist gravity's pull by seeing the weight transfer up the slope with the swing.
2. Play the ball near the middle of the stance to make it easier to contact.
3. Take a stronger club to reach the target.
4. Choke down on the club for better control.
5. Aim to the right an amount sufficient to compensate for the slope.
6. Take a couple of practice swings to adjust to the different condition, then make a comfortable, controlled swing.

Illus 14-3
Gravity will resist the player's attempts to transfer weight to the left foot from the uphill lie.

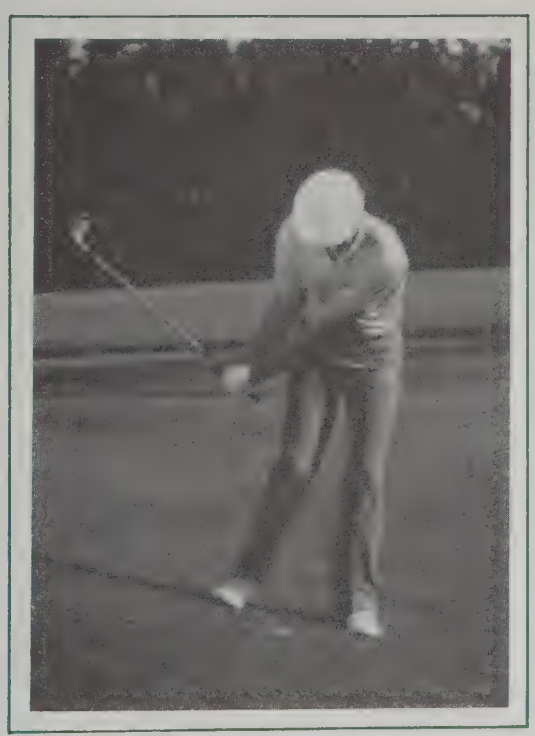


Illus 14-4
The downhill lie is made easier if the player moves the ball back in his stance.

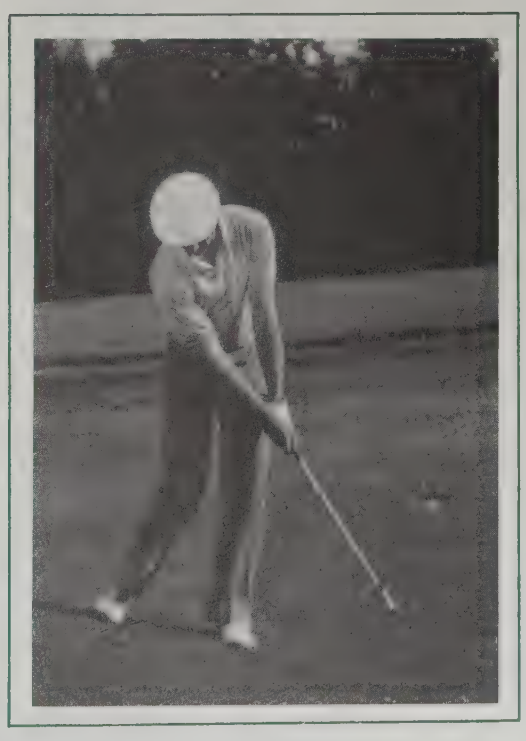
Downhill Lie

The *downhill lie* shot is difficult because the ball is below the normal stance level (Illus 14-4). This shot requires more concentration than any of the others. The tendencies are a push or push-fade and the topped shot. A push or push-fade is largely the result of not squaring the clubface. It is difficult to produce clubface rotation and not top the shot while trying to follow the slope of the terrain. Further adding to this tendency to push or slice is gravity pulling the player's swing center ahead of the ball. Some solutions (used in combination) that the teacher can offer his players are:

1. Play the ball slightly back of the middle of the stance.
2. Set-up perpendicular to the ground, but resist being pulled down the hill past the ball.
3. Tilt the shoulders as much as possible to match the slope of the ground to make it easier to stay with the shot. (It helps to sit more in the right knee.) (Illus 14-5)
4. Allow for the club being somewhat delofted which will cause the ball to go lower, hotter, and roll farther. A ¾ controlled swing from a downhill lie may send the ball the same distance as a full swing with the same club for a normal lie.
5. Aim to the left an amount commensurate with the slope.
6. Take some practice swings until there is a comfortable feel, then make a controlled swing following the level of the ground. (Illus 14-6)



Illus 14-5
Keep the shoulder tilt matching the terrain with a flexed right knee.



Illus 14-6
Follow the level of the ground as does Jerry Pate.

Uneven Lies — Short Shots

Be sure the student realizes that the same ball flight tendencies will also apply to the short pitch, chip and bunker shots. In fact, it is quite important to learn how to adjust to severe slopes around the green where a lofted club is frequently used. (Illus 14-7) In these situations the face angle will be even more misdirected in relation to the leading edge than on longer shots. Here are some general guidelines for pitches, chips and bunker shots from uneven lies:

Short Shots Around The Green

Ball above feet

Tendencies	Adjustment
— Ball will go left	Aim right, or open the face
— Chunk	Shorten grip, make practice swings, weight toward balls of feet

Ball below feet

— Ball will go right	Aim left, or close the face
— Top or blade the shot	Sit deeper weight on heels, make practice swings, stay down.

Uphill

— Shot travels high and short	Aim right, take straighter-faced club.
— Shot pulls left and hit behind	Lean into hill, take practice swings, follow terrain

Downhill

— Push shot to right	Aim left, or close the face
— Hit behind, skull or top	Position ball back, sit more in knees and follow slope

In the adjustments to the short shots, notice that an option was given to open the face instead of aiming right or to close the face instead of aiming left. This is possible, of course, in the full swing as well. On a full shot, the player could also block the release when the ball is above his feet to counter a hook, or roll his hands to counter a slice when the ball is below his feet, though the latter solution is quite difficult and not generally recommended. The teacher's role should be to help the student find the easiest way — for that student — to overcome the situation.

Illus 14-7
Players are often surprised when playing a shot from an uneven lie around the green, that it travels a different direction than where they have aimed. An experienced professional like World Series of Golf champion David Frost can handle it.
Photo by Stephen Szurlej

Wind adds a special challenge to golf and has even helped make some particular courses and holes famous. The par 3, 12th hole at Augusta over Rae's Creek, though only 155 yards long, is considered one of golf's toughest partly because its wind patterns are unusually difficult to read. Revered St. Andrews on first look appears to be a modest challenge as players blithely trek outward on the front nine. It is a different story when they turn the corner to fight the wind coming inward. (f 14-1)

f 14-1 St. Andrews the "old course" is responsible for the origin of the terms OUT and IN which still are found on an 18-hole scorecard. The first nine holes go "out" away from the clubhouse and the last nine "in" toward it.

Like uneven lies, the wind has four general directions.

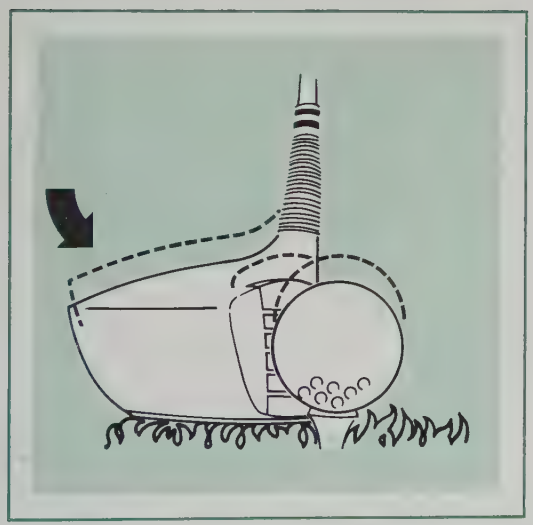
1. against
2. following
3. across from left to right
4. across from right to left

Quartering winds and varying velocities further test the player's judgment on windy days. The basic four-wind patterns and the needed adjustments to be taught to golf students are as follows:

Wind Against

"When it's breezy, swing easy" is one of those golf sayings that has a simple but emphatic message: play within oneself in windy weather.

But this is not *easy* to do, particularly when the wind is against the player. Every human instinct pleads for the player to swing harder, but this response only courts disaster. Harder swings produce more chance for error, and errors made into wind are severely compounded. Attempting to hit harder usually results in: 1) an early hit with the right hand at a steep approach angle causing more than normal backspin and a high (rather than low) shot, 2) too much tension in the right side of the body inhibiting release and producing a push-slice (disaster when played into a strong wind). So, rule number one is: Instead of trying *to hit harder and farther into the wind, the student should learn to swing with normal effort, or even shorten the grip and swing more conservatively.*



Illus 14-8
If teeing the ball low causes the player to steepen the angle of approach and create more backspin, then the purpose of teeing low has been defeated.

There are those who recommend that the ball be teed lower on a driver shot into the wind. This advice has some inherent danger. 1) When the ball is teed lower it encourages a more descending blow which adds backspin. (Illus 14-8) 2) A ball teed low makes it more difficult to square the clubface. The tendency is to leave the face open, resulting in a push slice. It is better to tee the ball at a height which encourages a shallow or level angle of approach to the ball. Descent causes additional backspin, while ascent adds more loft. The student wants neither. Therefore, the most effective tee height is that which allows the player to square the face with a more level approach angle.

Another option when playing from the tee into a stiff wind is to play the ball three to four inches further back in the stance. This position closes the left shoulder, presents less loft on the face, and encourages a slight in-to-out path, for a lower running draw. When students tee the ball too far forward, the opposite, a high slice, is often the result.

One of the most frequent errors made by all golfers, professionals included, is leaving the approach shot to the green short when playing into the wind. Wind is universally an underestimated force. Keeping the ball flight low is fundamental to playing effectively in windy conditions. A simple way to create a lower trajectory for an iron shot is:

1. If the shot is normally a #7 iron distance but now is against the wind, choose a stronger club like a #5 iron and choke down the grip from one to two inches. Each inch down produces about one club shorter in distance.
2. Move the ball two ball widths farther back in the stance. The grip end is now more advanced toward the target past the clubhead. This decreases clubface loft.
3. Take a ¾ length backswing with normal rhythm. This will also produce a ¾ finish with the upper body finishing a bit more vertical.
4. In the forward swing return to the ball with the hands and clubhead address relationship (hands well-advanced of the clubhead) still intact. Make a normally paced swing, but one that is shorter. This is not necessarily a downward punch. The player should be trying to minimize backspin so the ball doesn't "upshoot." The shot should be an abbreviated version of the normal swing with an adjusted set-up. The reason this is not described here as a "punch shot" is the word "punch" connotes a sharp, steep blow that causes additional backspin.

"I love rotten weather. The founders of the game accepted nature for what it gave, or what it took away. Wind and rain are great challenges. They separate real golfers."
Tom Watson

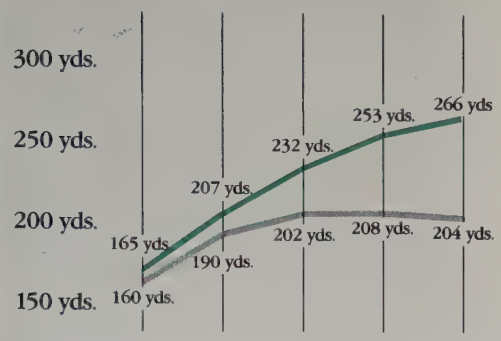
On wood shots and long irons, special effort should be made not to "rush" to get the shot "over with." Use a normal pace into the wind. Also on wood shots a widened stance will lower the center of gravity to help maintain balance and will level the angle of approach.

Downwind Shots

When the wind is following it will not only help propel the ball forward in the air but also reduce the backspin. So, when the ball lands it will roll farther. This may be an advantage on the drive. However, it may pose a problem on the shot to the green. Unless the downwind approach shot has a very high trajectory and/or an unusual amount of backspin, the ball should be played short, bounced onto the green and rolled to the flag, if the terrain allows. If the ball has to carry a hazard, the player may play the ball a bit more forward, open the face slightly and take a longer, slower swing to produce a high fade that falls softly.

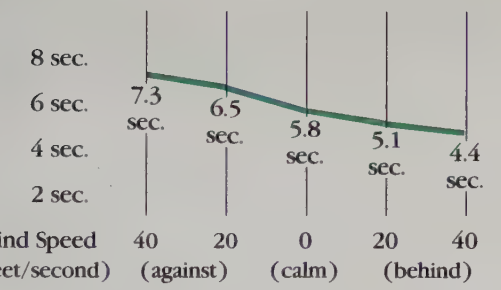
WINDSPEED CHARTS

Carry and Total Length of Shot*



* The run included in this column is an estimate based on the forward speed of the ball when it first hits the ground. It will in any event depend on ground conditions.

Time of Flight



Illus 14-9
Most golfers do not compensate adequately for the effect of wind on their shots.

On the downwind tee shot, there is some difference of opinion on strategy. The following is a sampling of these opinions:

1. Tee the ball higher. Stay behind it in the swing to get greater height in the shot and take advantage of the wind for length. Be careful not to exaggerate the changes.
2. Hit a normal shot rather than risk trying to do something different that can cause trouble off the tee. The wind will make the ball go farther.
3. Use a #3 wood to get a higher trajectory for distance while also having good directional control.

All three approaches have certain advantages. The choice will be influenced by hole length, tightness of the fairway and potential problems of an errant shot. What seems most teachable is to stay with the normal shot downwind and accept the added distance as a bonus. If the driver is inconsistent, go with the #3 wood.

Side Winds

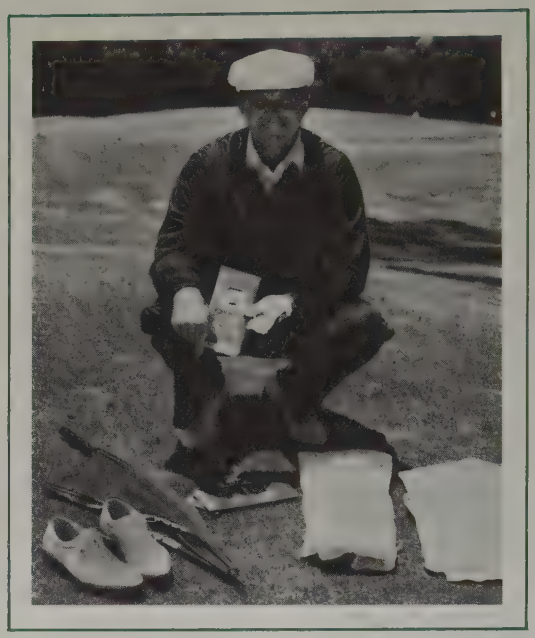
On the tee with either a left-to-right or right-to-left wind, stand closer to the side from where the wind is coming and aim down that portion of the fairway. Let the ball ride the wind, not fight it, to maximize distance. Some players try to fade the ball with a left-to-right wind or draw it with a right-to-left wind in order to get more distance on a tee shot. Assess the risk before attempting this. The fade can turn into a slice; the draw, a hook; and with the wind's help, the ball can go totally out of control. That is the key word in wind conditions, *control.* Basically, advise students to keep the ball at normal or lower trajectory, swing within themselves, take extra club when necessary, and remember that the wind will probably affect the shot more than the player expects. (Illus 14-9)

Finally, one of the most subtly astute comments ever made about playing in wind came from PGA Hall of Famer "Chick" Harbert. He said, "When playing *into the wind* — just try and make your very best swing and solid contact. When playing *downwind* — just try and make your very best swing and solid contact." Need we say more?

Cold and Wet Weather

Be prepared is the best advice to give golf students for playing in inclement weather. They should absolutely have the following items available during play: (Illus 14-10)

1. One or more dry towels depending on the severity of the rain. Hook the towels under the umbrella so they'll stay dry. Losing control of the club is potentially the most serious bad weather problem related to performance. One can't swing a golf club when one can't hold onto it. Keep the hands and grips dry. (Illus 14-11)
2. A golf umbrella with a 58″ spread, and a golf bag cover to help keep the rain from entering the bag so that the grips will stay dry.
3. Though not essential, a hand-warmer certainly is useful when the temperature is in the 40s or 30s. The new instant chemical disposable variety is the most convenient. But remember, it is illegal to heat golf balls with a warming device during play.
4. Dress for the occasion. Staying warm and dry are the objectives, providing one does not lose the mobility to swing effectively. (Illus 14-12) The solution is to have a good rain suit that permits freedom of movement, is waterproof and warm while still "breathing." The best suits are expensive. The customer must learn that the inexpensive products keep a person neither warm nor dry.



Illus 14-10
The player who plans to compete needs to be prepared for inclement weather.
Photo by Jeff McBride

Illus 14-11
Keeping the hands dry in wet weather is absolutely necessary.

Illus 14-12
Being prepared for play on a cold day can make a great difference in the player's comfort, enjoyment and performance.

5. In cold weather consider wearing underneath the suit the following: thermal underwear, a turtleneck, loose-fitting sweater or sweater vest. For the lower torso, include heavy trousers (not made from wool) and two layers of socks. A player's hands, head and feet are the most critical to keep warm and dry. A wool stocking cap that can be pulled over one's ears or a water repellant hat with a brim or bill is a must, as well as spiked shoes that are waterproof or at least water-resistant. Several golf gloves, some of the wet-weather variety, should be in the player's bag. Sheepskin gloves or one of the newer thermal-type gloves can be worn in between shots for hand warmth.

Playing in wet, cold weather also calls for some adjustment in technique and strategy. Cold weather dictates that the player warm up and stretch more than usual before the round. Particularly, stretch the back muscles so a full turn can be made. When wearing extra layers of clothing, the swing will tend to shorten. This, coupled with playing a cold golf ball, requires that the player take more club to reach the desired distance.

If the greens are very wet and the golfer is in chip or pitch range, he should choose the lofted shot which lands close to the hole. Judging roll on wet greens is chancy. (Illus 14-13) Also, when playing iron shots from soaked turf, it is a good practice to play the ball a bit farther back than normal in the stance so as not to catch the ground first. The sole of the iron club will not bounce on a drenched fairway; instead, it will dig. Fairway woods like a #4 or #5 wood are easier to use from wet turf than long, straight-bladed irons like a #2 or #3.

Illus 14-13
On wet greens, pitch to land the ball close to the hole on the fly since trying to judge speed is difficult.
Photo by Jeff McBride

Hot Humid Weather

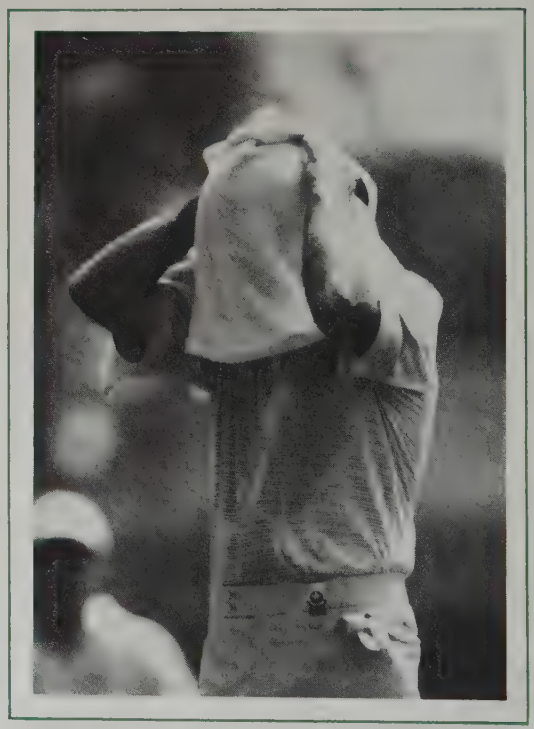
An important tip to pass on to students that applies to both hot days and rainy days is: ***keep the hands and grips dry.*** Have a towel handy for hot days as well as rainy ones. Like playing in cold weather, the golfer should also keep his head covered, preferably with a cool, reflective material. (Illus 14-14) Caution players about overexposure to the sun if they have not previously played in hot weather, and particularly if they are on a winter vacation and going south to play. (Illus 14-15)

One important service the professional can render is to make his students aware of the sun's damage to their skin and sight when they are frequently exposed. A sunscreen of at least a 15 rated protection may prevent skin cancer and avoid wrinkling from over-tanned skin as they grow older. As a preventive measure, encourage the players to wear a visor, cap, hat or dark glasses when the sun is particularly strong. Regular exposure of the eyes to the sun can do serious and irreversible retina damage. This is serious business for anyone who gets frequent, long exposure to the sun's rays. The sun may appear to be one's harmless friend, but long-term effects of overexposure are no laughing matter.

Lightning

From 1959 through 1989, over 120 golfers were killed on golf courses by lightning, and 308 injured. In storm conditions where lightning is present, golf can become dangerous. Too many players disregard this danger. The professional will do a great service to his players if he will:

1. Personally demonstrate a healthy respect for lightning by finding shelter or leaving the course when the threat appears. When the professional does it, people pay attention.
2. Encourage the golf facility to provide shelters equipped with grounded lightning protection.
3. Develop a lightning warning procedure which applies for regular play and all events at the course. This should include an alert system and a stop-play signal. (f 14-2)
4. Insure that first-aid procedures, including CPR, are a part of the staff's general training. See Appendix 14-A for futher information.



Illus 14-14
The man under the towel is PGA champion Larry Nelson who is drying his perspiration on a hot day using one of two towels his caddy is carrying.

General Observations On Weather

1. If the player's home course is quite windy, he should consider choosing clubs and balls that favor a lower trajectory.
2. A strong wind can have a definite effect on short pitch shots, chips and even on putts. Point out this fact when teaching the students how to handle wind. Get them to chip more than to pitch in strong winds and to be aware of a powerful wind's influence even on putting.
3. Players seldom realize that, when pitching into a strong wind, they can stop the ball almost immediately with a lofted club. Tell them that they need to land the ball closer to the hole than usual in this circumstance. The opposite is true downwind.
4. It is easier to intentionally curve the ball hitting into a head-wind, and more difficult to curve it going downwind.
5. On a cold day, walking briskly will help a player to stay warm and loose.
6. Wind affects not only the ball, but also the body. Maintaining balance on both long and short shots, particularly putting, can be aided by slightly widening the stance. This lowers the body's center of gravity and gives the player a more solid base.

f 14-2 R•SCAN Corporation offers to any golf facility a lighting warning service.
Their address:
1200 Washington Avenue S.
Minneapolis, MN 55415
1-800-950-7879

Teaching Unusual Shots

The need to "scramble" may not be a desirable situation, but being able to scramble proves beneficial when the score is posted. Scrambling can simply mean good, straightforward "up and down" short game play, or it can include more creative shots that save strokes. Here are some of those special shots to teach the students.

Intentionally Curving the Ball

Golfers frequently play a shot that curves around an obstacle to the target. Knowing the principles behind such a shot and having the ability to perform it provide the player with a very useful skill.

Illus 14-15
U.S. Open champion Curtis Strange knows it's important to keep cool on very hot days and does so here by pouring cold water on his neck.

Photo by Stephen Szurlej

The *laws* are basic: swing path and clubface position. If the player wishes to hook the ball, he needs a face position that is closed to the swing path at impact. That combination can be accomplished using several different techniques.

1. Sole the face squarely but assume a closed-face grip position; line both the feet and shoulders to the right of the target.
2. Align the body to the right of where the ball should *start* and close the face so that it is at right angles to where the ball is to *finish*. (Illus 14-16)
3. Take a normal grip and set-up, but during the forward swing make the path travel on an inside-to-out line while allowing the normal rotation of hands and forearms to close the face.

Options one and two are achieving the result by prepositioning, in other words "setting up the result" before the swing begins. The trick, then, is to trust the geometry and make a normal swing that matches the alignment. Option three, which is used only by the more talented players, is made with motion rather than position. It is done by experience, feel and imagination. The ball doesn't care which style or combination of styles is used.

When a small curve is desired, only small alterations are necessary. Large curves require large departures from conventional technique. Visualization of the shot prior to execution is an important part of achieving the desired result.

Remember to tell the student that when hitting the intentional hook, the ball will go farther than normal for that club; conversely, shorter for a slice. Also, when playing the sharp hook, the player must leave enough loft in the clubface to get the shot airborne; when slicing, not so much loft that the ball goes "nowhere." The hardest thing to get a player to do in order to successfully curve the ball is to alter his normal swing path. An inside-to-out swinger has difficulty in hitting a cut around a tree-lined "dog-leg right." The problem is that although he sets the face open and aims left, he then swings from inside-to-out to the right with a resulting push into the trees. Path and face must combine correctly to get the desired result.

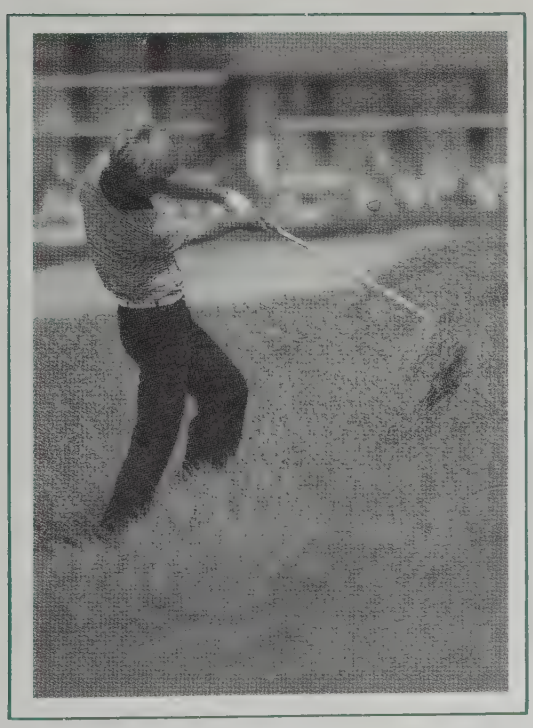
Illus 14-16
The teaching aid is set-up to let the player produce a draw, i.e., inside path with the face slightly closed to the path.

Recovery From Rough

When the ball lies deep in the rough, the element which makes the shot difficult is the grass which gets between the clubface and the ball. (Illus 14-17) The player should learn how to minimize the amount of grass and make allowance for its effect.

A steeper *angle of approach* will reduce the tendency to catch the grass too early in the forward swing. A large amount of grass cushions the blow. It also reduces the clubhead speed, resulting in a totally fluffed shot, or generally a weak result.

Aiming the body left, opening the clubface and playing the ball a bit forward will help create the loft and steep approach angle needed to escape the grass. (Illus 14-18) The open face also helps to offset the effect that long grass can produce by grabbing the hosel and closing the face. Advise the player to expect sharply reduced distance out of the shot. Therefore, if there is a great deal of rough or other trouble to carry before reaching the target, it may be wiser to play out, into the fairway, which is more easily reached.



Illus 14-17
Allowing too much grass between the clubface and ball will kill the energy applied to the ball.

Illus 14-18
Steepening the approach angle in deep rough helps to reduce the grass between the face and also gets the ball up quickly as PGA star Tom Kite demonstrates.

When faced with greenside rough, the principle of steepening the angle of approach is one method, but another is made possible because a long distance does not have to be covered. In greenside rough, a simulated bunker shot may be played. Here, the student can take a bigger than normal swing for the distance required and intentionally hit behind and through the grass as he would on a bunker shot. If the grass is thick, the shot should be played aggressively, similar to a lie in fine sugar sand. If the grass is less thick, the effort should correspond to a bunker shot played from firm sand. The direction in which the grass is growing also has an effect on how the shot should be played. If the nap is into the player, it will tend to catch the club, slow it down and leave the ball short of the target. When the nap of the grass is inclined toward the target, it makes the greenside shot easier, but it may offer another challenge to the player attempting a full shot. The challenge is the "flier."

Fliers

If a golfer plays from longer than normal fairway-length grass or wet turf and is continually surprised when the shot goes over the green, he should become educated about the flier shot. Anytime one reduces backspin on a ball it will tend to lower that shot's trajectory and cause it to roll farther than normal after it hits the ground. When a player gives up backspin on the iron shot to the green, he gives up control. The first step in helping the player is to assist him to recognize flier situations. When the ball is in grass or clover that is high enough to get between the ball and clubface, but not so high as to reach to the top of the hosel, he should expect a reduction in backspin and a "hotter ball," a flier. This holds true, as well, if water (dew, rain or liquid from plant material) reduces the friction which is necessary to promote backspin. Like a "spitter" in baseball, it causes the ball to do "funny things."

"The difference between a sand bunker and water is the difference between a car crash and an airplane crash. You have a chance of recovering from a car crash."

Bobby Jones

Once the conditions are recognized, the player can either allow for added distance on the shot or make some mechanical adjustments. Allowing for greater distance would mean either taking less club or swinging at less that full effort. If adjustments are preferred, the player can steepen the swing arc or open the face and play a high fade.

Hardpan

Bare spots on the golf course that are largely devoid of turf and quite firm underfoot (such as those caused by golf car traffic) have come to be called "hardpan" in the golfer's lexicon. A golfer who finds his ball on such a lie can be helped by knowing some of the tricks in playing this shot. If the distance to the green is within chipping or pitching range, it is wise to take a less-lofted club than normal and play a chip-and-run or pitch-and-run shot. This is the safest choice for two reasons. First is that the flange of the club will be narrower and tend not to "bounce" into the ball: second, but more important is that the clubhead speed for the less lofted iron will be slower than for the deep-faced, wider-flanged pitching club, so that if the ball is mishit the error will be far less severe. Chipping, or even putting, from hardpan from off the green is generally good advice.

If the ground is "rock hard," and the player must use a sand wedge, be sure the minimum bounce from the sole is presented. This is accomplished by squaring the face up at address. Play the ball back in the stance so the contact point for the clubface will be at the very base of the ball where it meets the ground. Make no attempt to lift the ball. Instead, maintain the shaft angle that was established at address. It takes considerable trust to execute this shot because the margin of error is close to zero.

Golf, by being a game played out-of-doors, in the natural elements and on individually unique facilities, presents the participant with ever fresh circumstances which challenge his ingenuity and skill. That's what helps make golf a great game.

CHAPTER 15

Teaching Groups, Clinics & Schools

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Teaching Groups, Clinics & Schools

To compare the giving of a private lesson to conducting a large group lesson is like comparing pomegranates and peaches. They may have something in common (their first letter) but they certainly don't taste the same. Neither are individual and group lessons taught the same.

What is a group lesson? What number comprises a group? There has, up to now, been no precise definition of the term "group lesson," so let's be the first. One person is a private lesson; two to four people constitute a semi-private lesson; five and up is a group. How large can the group be? That depends upon what is to be accomplished. If the lesson is one hour long and the teacher plans to spend a small amount of time (three to five minutes) with each student, then eight to 12 people is the maximum, allowing time for explanation and demonstration. If individual instruction is not called for or even more limited, then there really is no limit to group size provided there is enough equipment and space, and the pupils can see and hear the professional. The technique for teaching one hundred is no different than teaching twenty.

For most of the years that golf has been played, the private lesson was the only type offered. The annals of golf do not record when the first group lesson was given, but whenever it was, it was done undoubtedly for some of the same reasons that make group lessons popular today: they can be more fun; they are less expensive, and they are less intimidating.

Opportunities To Teach

Although the private lesson is still the backbone of the professional's teaching program, there are several other teaching opportunities for which one should be prepared. One is the clinic style of teaching, in which the professional makes a single presentation to an audience that can be for their observation only or may include their participation. (Illus 15-1) Most frequently this is done outdoors where the teacher can demonstrate shots, although it can also be done in anything from a classroom with a dozen pupils to an auditorium seating thousands. Techniques for conducting clinics are discussed later in this chapter.

Illus 15-1
A demonstration clinic doesn't require that the teacher stand on one leg to hit shots. But demonstrating some showmanship can help make it more entertaining for the audience.
Photo of Paul Hahn, Jr.

Another teaching opportunity is group instruction which can take several forms. One is the junior high, high school or college setting where the teacher may conduct a structured experience of roughly 15 weeks or 30 sessions which include range practice, on-course experience, classroom work, testing and grading. An increasing number of PGA professionals are engaged in this type of instruction. (Illus 15-2) Group instruction has also been a part of most club professional's programs for some time but has been focused largely on juniors and beginners. This need not be the case in the future. A creative instructional program can attract all levels of players to take group instruction. Examples of topics which would have appeal to a broad spectrum of players might be: *"The Wedges"*— A two-session class on playing the pitching wedge and sand wedge from around the green. *"Course Management"* — Tour the course and play situation golf. Learn how to play from all the places you wish you'd never been. *"Total Putting"* — Become a lower handicap player by improving your game on the green. Three sessions of intensive training, including reading the greens, visualization, stroke technique and the psychology of putting. *"The Woods — From The Tee And The Fairway"* — Add length to your tee shots, hit more fairways and conquer the woods from the grass.

The form of group instruction which has seen the greatest recent growth is the *golf school.* This type of instruction is held at private clubs, public courses, resorts, and golf ranges. The groups can be categorized as either commuter or overnight guest-type. Having identified some of these teaching opportunities let's now explore them in more detail.

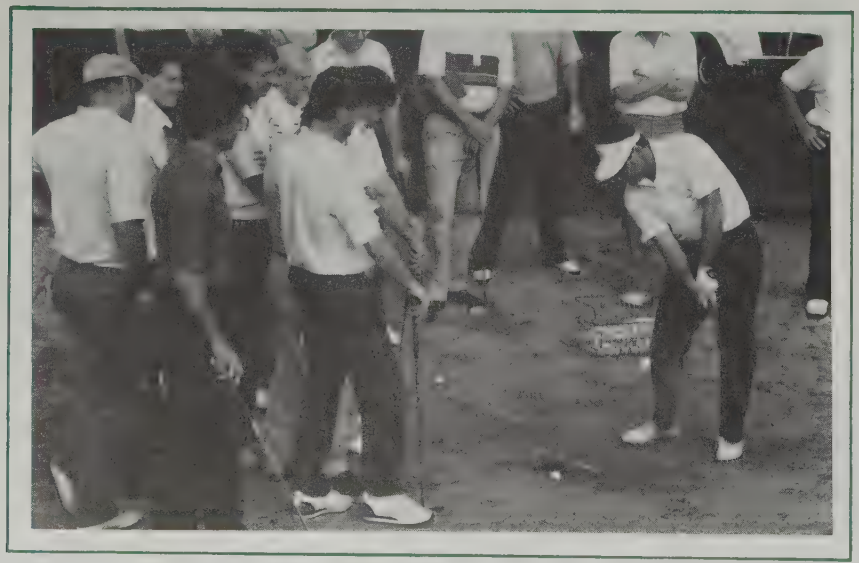
Illus 15-2
There is almost no limit to the size a group can be, providing there is enough space, adequate equipment, the teacher can be seen and heard, and the method is appropriate.

Clinics

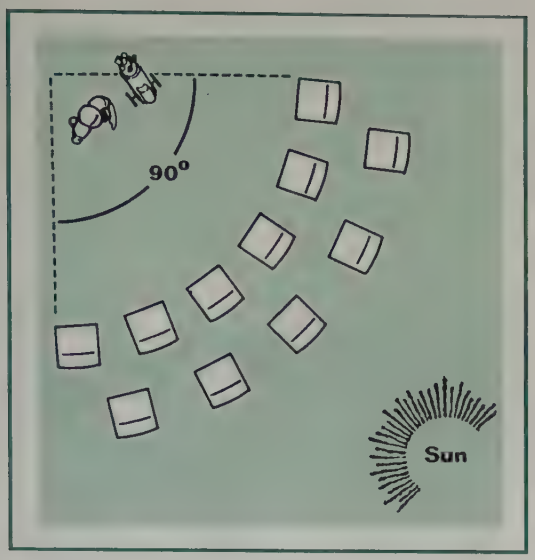
The professional who is a busy teacher will have many occasions during his career to conduct golf clinics. Doing the job well will only enhance his reputation. If an audience is going to take the time to watch and listen, the professional must make it worth their while by thoroughly preparing himself. What follows are some of the specifics for conducting successful clinics.

Of the two basic types of clinics, demonstration and participation, the first, demonstration, is given to a large audience usually for the purpose of education and entertainment. What golfers want most from this type of clinic is help for their golf but they would also like to enjoy the time there. So, blending fun with fundamentals works best. The balance will depend on the audience, which must be sized up in advance. What is their experience level? What are they expecting? What is the purpose and setting for the clinic? It is possible to give a good presentation that ends up a flop because it was given for the wrong reason or to the wrong group? Knowing the audience is part of one's preparation. (For example, don't make the mistake of one professional who made favorable references to Coca-Cola® when his appearance was co-sponsored by Pepsi®. That's poor preparation!)

The participation clinic is usually a blend of the professional giving a demonstration, making observations and then having the group hit balls while receiving coaching. (Illus 15-3) In such a program, it is important to keep the clinic concept simple and the tasks progressing from easy to more difficult, with adequate reinforcement and review. Use check points to help the group retain the information such as "at address check to see that your hands are in line with the inside of your left thigh." Participation clinics are a regular part of any busy teaching professional's life. Making them favorably anticipated by the participants takes extra effort and imagination. One professional made it a point each week to have a unique demonstration item or gimmick to help make a teaching point in his ladies' clinic. He used everything from toothpaste tubes to vacuum sweeper hoses. It created tremendous interest: a regularly attending large group of participants always was wondering, "What will he come up with next?"



Illus 15-3
After the professional demonstrates his point, the students go back to practice.
Photo by Jeff McBride



Illus 15-4
Arranging the group in seats, either single row or no more than two rows deep, semi-circular, where they all can see and facing away from the sun, will allow them to be more comfortable and attentive.

Here are some suggestions for demonstration clinic preparation when dealing with large groups :

1. Advertise broadly and well in advance. Use posters, newsletters, mimeographed sheets placed in lockers. Get the staff to talk it up, make phone invitations and seek media support if the clinic is public. Get the people there!
2. Determine the location, taking into consideration the time of day and direction of the sun and wind. Do not face the audience into the sun if it can be avoided. The professional should take a position where he can be seen easily by the audience. Bleachers, or the side of a hill are excellent spots for a group to view a clinic. Some type of seating is important for audience comfort if the presentation period is over 20 minutes. Arrange the seats in a curve with the demonstrator located at the point. (Illus 15-4) When using ground-level chairs, try not to go more than two rows deep, and keep them well-staggered.
3. Use a sound system with a lapel clip mike. Test the system in advance. Remember: Hand-held mikes are useless while demonstrating. Even if the performer has a strong natural voice, it is better to use a microphone, since sound that's amplified and projected is easier on the audience and helps them to enjoy the presentation without straining to listen. It's also easier on the performer.
4. Limit the time for the clinic to around 45 minutes provided the audience is comfortably seated; if the audience has to stand, make it shorter. It is always better to stop with the audience wanting more than to have them looking at their watches, wondering when the clinic will be over.

Here are some additional suggestions:

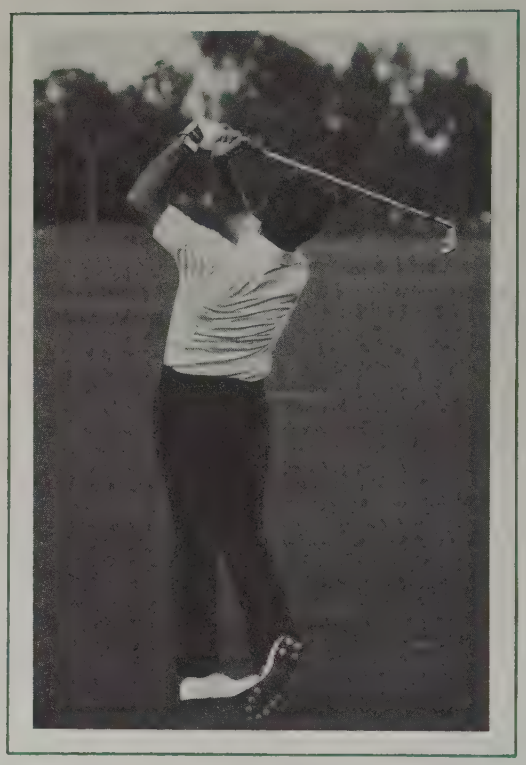
1. Start with something light or fun to get them relaxed.
2. Early on, compliment the group, the school, the town, the state, the club, the organization. It wins over the audience.
3. Give them a preview of the message, give the message, then review the message.
4. Get people involved by asking questions or calling them out of the audience to assist.

5. Limit the number of ideas presented so they are easy to remember. Use stories or practical examples to liven your points so they are presented in a fresh way.

6. Finish with something dramatic, poignant, strong.

Following is a sample outline that one successful professional used for a demonstration clinic:

— Open with humorous Scottish story.
— Compliment the organization for their position in the business world.
— Ask some questions about golf to which the audience must answer "yes, that sure sounds like me."
— Demonstrate in a humorous way the common failings that golfers have that will be covered in the clinic
— Offer promise of improvement for good listeners and observers.
— Give a preview of what is going to be accomplished.
  Point 1 — What is a swing? Demonstrate with example. (Illus 15-5)
  Point 2 — What must happen before the swing starts? Grip, aim, set-up.
  Point 3 — Emphasize the importance of routine for consistency.
  Point 4 — Stress the importance of practice to internalize routine and show what to practice.
— Cover points 1, 2, 3, 4 with examples, questions. Demonstrate illustrations (charts and pictures on boards).
— Review
— Make strong closing — Putting all points together to produce the results.
— Hit final shot.



Illus 15-5
Being able to demonstrate what one is teaching enhances a teacher's credibility.

Group Teaching

It is doubtful that a teacher can consistently be as effective with a student in a group as he can in a private lesson, one-on-one. It's tough to beat individual attention. Yet, it's amazing what results can come from a teacher who knows how to handle groups. In terms of efficiency (helping the most people in the least amount of time), group instruction is far superior to private lessons.

Group teaching requires more planning, a strong leader-type personality, a more expanded practice facility than normal and a different method than one-on-one instruction. There are several good reference books listed in the Appendix for this chapter which have special sections devoted to group instruction, but here are some of the critical differences between private and group teaching.

Illus 15-6
Always ... **Always** *discuss and demonstrate proper safety before any student swings a club.*

A. The teacher must be well-organized. If 20 people are going to arrive for a lesson at 10:00 a.m., the balls, clubs, teaching aids, facility, lesson plan and teacher must be ready for them. The students should be provided with something to do on their own when they arrive, such as: go to the putting green to practice putting; do drills or warm-up exercises; review written material from the last session; view videotape on previous lesson. The point is, get them occupied even before the actual lesson begins.

B. Set up your facility with self-help aids. One professional painted his 20 range rubber tee mats with alignment and target line arrows and different colored target and swing path lines. Another created stations for practicing principles like grip, aim, set-up, position, impact, etc.

C. Use teaching aids that can help the students without the teacher personally being with them. Formed grips are a perfect example. If all 20 people in a beginning class have formed grips to start with, it will reduce the time the teacher needs to spend on teaching the grip in the class. Each student can swing with the formed grip club, then switch to the normal club for a few shots, then back to the formed grip, until the correct grip feels natural. For beginner groups, set the formed grips in a position that encourages a draw.

Illus 15-7
Clear your space by looking around before ever practice swinging or swinging at a ball. And don't walk up behind someone posed to swing.

D. SAFETY INSTRUCTIONS MUST BE GIVEN BEFORE THE PUPILS GET CLUBS IN THEIR HANDS. (Illus 15-6) A professional career in golf can instantly be destroyed if someone in a class gets seriously injured because the teacher has been negligent. Explain that golf is not inherently a dangerous sport but serious accidents can happen if people are not careful. Potential for accidents can be reduced by setting some brief but emphatic safety rules, which follow:

1. *Never* swing a golf club until you have "cleared your space." Do this by looking around you in all directions and testing the space for backswing and forward swing to see that no person or object interferes. (Illus 15-7)
2. *Never* walk up behind someone who is poised to swing.
3. *Never* swing a club toward someone. It could slip from your hands.
4. *Never* walk out in front of the hitting line to recover a ball, tee, or for any other reason. (Illus 15-8)

Illus 15-8
Do not walk out in front of the practice line to retrieve a ball.

Don't just read these precautions — demonstrate them for greater impact.

E. Use a partner/teacher system for more effective instruction. Pair the students so that while one is performing the other is observing. Use each observer as your assistant teacher by having him give feedback to the performer. The observer's task must be kept simple. For example, "Okay, now everyone not on the tee watch to see if your partner finishes with his weight on the left foot, body facing the target, and the right foot ending up in a vertical position on the toe." Even a novice can recognize these points. This method not only helps the performer but it also helps the observer to be a better performer when his turn comes.

F. The use of self-monitored check points for the performer are helpful since the teacher can't be with everyone personally on each swing. For example, "left wrist flat at the top of the swing" is a check point. A drill to teach this is to have the students take their grip, cock the wrists immediately in front of them so the club is nearly parallel with the ground, the toe points to the sky and their left wrist is flat. The pupil can "check it" before swinging to the top of the backswing. (Illus 15-9)

G. Give brief, simple instructions the students can apply and practice, then add another step. Again, let them practice for a few minutes, then bring them back for the next step. The formula is to keep the explanation and demonstration brief. Break these up several times in the period to allow for application, practice and correction. It is a serious mistake to make a long presentation with several points before letting the student execute. You may give a brief overview or preview at the beginning of the lesson accompanied by a demonstration, but once you get to the details, feed the student in small chunks.

H. Do not get tied up with one student in a class of 20 while 19 others stand around waiting for direction. Individual help is necessary, but has to be very brief so that the others are not neglected. This point is frequently violated by the teacher who usually teaches one-on-one and forgets he's now giving lessons to a group.

Illus 15-9
A preset drill to see if the wrist is flat and toe to the sky. Here, the professional shows how cupping the wrist opens the face. A more closed-face grip will offset the cupped position if the player is unable to play from a flat wrist.

The commuter and resident school programs can take several forms but would basically be for a *local* group that comes one or more times a week for 1 to 2 hours or attends a special ½ day, all day, or multiple-day program at their club or course. Here is one sample schedule for the multiple-day (three day), resident school:

Schedule for Three-Day School
(Two Groups of Half-Day Participation)

f 15-1 This particular schedule is one type recommended for a resident school where maximum social interaction is desired. Some prefer the simpler 8:30–12:00 a.m. morning group and 1:30–5:00 p.m. afternoon group with no mixing of the two.

8:30-8:45
Opening comments and introductions to morning group. Outline for the three days, pass out notebooks.

8:45-9:30
Station Practice I —
Group A — Handicap 2-12 — "Full Swing"
Group B — Handicap 13-23 — "Pitch & Bunker"
Group C — Handicap 24 & Up — "Chip & Putt"

9:35-10:20
Station Practice II — groups rotate clockwise

10:20
Refreshments

10:30-11:15
Station Practice III — groups rotate clockwise again

11:30
Morning group 10-minute general review

11:30-12:10
Afternoon group arrives to join morning group — clinic given on "Full Swing" (non-participation, observation only)

12:15-1:00
Lunch

1:00-1:45
Combine both groups for indoor session on "Psychology", "Golf Course Management" or "Fitness for Golf." Morning group departs after session.

2:00
Afternoon group to practice tee — comments as in morning

2:15-3:00
Station Practice I — afternoon group (same organization as morning)

3:05-3:50
Station Practice II — rotate clockwise

3:50
Refreshments

4:00-4:45
Station Practice III — rotate clockwise

4:50-5:00
10-minute review, adjourn (f 15-1)

(See Appendix 15-A for a five-day schedule.)

A one- to five-day commuter, resident or club school (for members, players and guests) is done solely by the home staff or can feature an invited guest teacher to work along with the home staff. It is an attractive program because it offers the student a chance to have an in-season, concentrated golf session without leaving town and still be able to work half days. The most attractive part, however, is that the home professional staff is totally involved. For example, an assistant who is teaching in the school may get exposure to members/players he may not have had instructional contact with before. In the visiting-teacher format, the staff also gets the opportunity to see how another experienced teacher works.

Participants are often motivated by a name guest teacher who may create in them a new-found desire to improve. (Illus 15-10) This should be accompanied by encouragement from the visiting teacher to the students to follow up the instruction with the home staff. This program can be technically rewarding to the participants and financially rewarding to the home professional and his staff.

Illus 15-10
A well-known teacher like Hank Haney can draw people and stimulate interest in learning.

Photo by Jeff McBride

Vacation Resort School

The other school concept that has literally exploded in popularity is the overnight-guest and resort-type school. This is where students come to a setting which has one or more courses, practice facilities, accommodations, food service, a daily schedule, and visiting or permanent staff which are regularly or even totally involved in this type instruction for their livelihood. The better-known programs have been extremely successful and have been expanded to include offerings at almost any time of year at a variety of sites. These types of schools offer a staff experienced in group instruction, excellent

practice facilities, a tested predetermined curriculum and effective visual aids and learning tools. The drawbacks in the resort school system can be: 1) the expense when compared to the amount of instruction available at home for a similar capital outlay; 2) the tendency for the school staff to give too much information in a short period of time (even though it's good information) which may leave the pupil confused; 3) the problem of fatigue; 4) the potential for injury, in particular blistering. Most participants are not prepared for eight hours of golf per day for five days. Many get overly tired, then become frustrated when their bodies won't perform. At this point positive learning becomes difficult. Blisters are a form of injury in that they can hinder or entirely eliminate the student's practice. The professional, when teaching in such school situations, needs to be aware of these common problems and to minimize them. When such problems are solved, five-day schools can be quite rewarding.

Another concern is what may happen after the pupil returns home. There is frequently a need for follow-up. The home staff, though quite competent in their own right, may employ a different approach which would conflict with the approach at the school. Both methods are more than likely beneficial, but only one can be applied. Unfortunately, the student may be at a disadvantage because of these conflicting methods. Communication between the school and home teachers, where possible, while allowing some degree of flexibility in preferences will help solve this problem. (A partial list of golf schools may be found in Appendix 15-A.)

Considerations When Conducting Schools

Considerable preplanning and anticipation of potential problems are essential for the proper management of a group of people in a golf school. Included here are just a few suggestions to be considered before embarking on a school enterprise.

1. Who is eligible to attend?

Is this school for the public, club members only, club members and guests? What limitations are imposed regarding age groupings, sex, handicap? For a general school, try to include the public with no handicap, age or sex limitations, but don't include absolute beginners, unless it's a school for beginners. Require some playing experience. Divide the group by handicap into subgroups.

2. How many in a school?

That answer depends partly on the size of the general facility, the practice areas and available staff. Try to limit the student-teacher ratio to a maximum of 8-1; of course, smaller is better from the student's viewpoint. Thirty-two is a workable top number with a four-station teaching staff and one assistant for the on-line full swing teacher.

3. When is the best time for schools?

When people can and want to take them. In the Northern climates, at indoor schools during the winter, the best times are evenings and on week-ends for most working people and week-day mornings and early afternoons for others. Basically the same times apply when you move outdoors in the spring and early summer, where evening classes can extend until 9:00 p.m. Interest for instruction wanes by August.

In the southern warm climates, January through April are the most successful months for resort schools attracting those seeking refuge from the winter. Year-round southern residents seem most interested in the spring and early summer, as in the North.

4. When and how should you advertise?

If going national, it requires a considerable budget and lots of lead time. One half page of color in a single issue of the larger golf magazine may run more than $15,000 per insertion. In addition, if one is looking for January, February, or March customers, he'd better have the color separations, art and copy ready by June or July.

5. How many days for a school and how long should the days be?

The most popular schools at present are either one, three or five days. Generally, they start between 8:30 a.m. and 9:00 a.m., with lunch around noon followed either by afternoon play, on-course instruction, or a classroom session and practice session followed by course play or instruction until 5:00 or 6:00 p.m. Evening sessions are generally not recommended as the students need to rest or change pace. A sample one-week schedule for Golf Schools can be found in Appendix 15-B.

6. What written support materials should be prepared?

For schools of three or more days it is recommended that all the students receive notebooks. A sample of subject material might look like this:

Welcome and Introduction Letter
School Philosophy
How To Get Most Out of the School and Setting Realistic Expectations
Ball-Flight Laws
School Priorities, Student Priorities and Notes for Full Swing, Short Game, Bunker Play and Putting.
Drills and Practice Programs
Psychology and Course Management
General Notes
Staff Bios.

7. Should teachers stay at one station so pupils rotate to them, experiencing four different teachers, or should a group be assigned to a teacher who stays with them and teaches each skill to the same group?

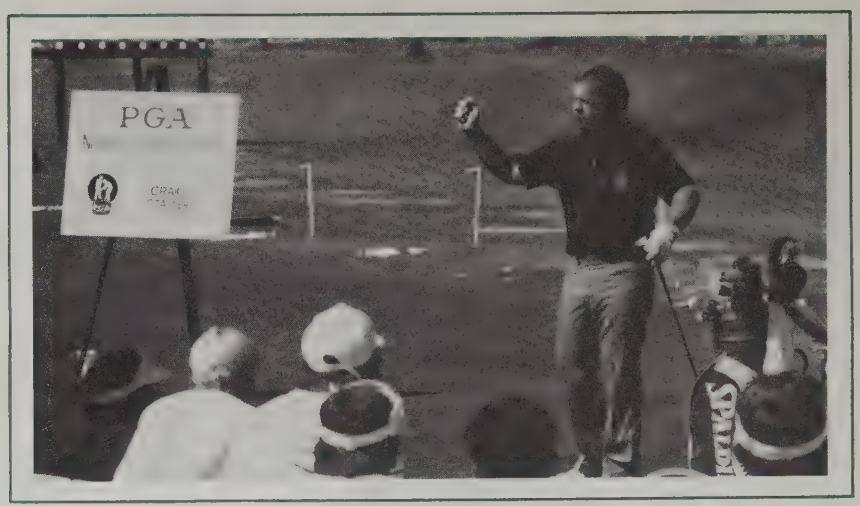
Both systems are used successfully. There is something to be said for the specialist who remains at a single station. The quality of teaching is usually better and the students seem to like the variety

when they get different teachers. The drawback is that the station specialist has not been with the student while other changes were taking place. The answer would hinge on the talent level and preference of the staff, and what seems best for the student.

8. What kinds of details are there in running schools that one might not anticipate at first glance?

In no particular order, consider the following:

a. Staffing…is there a need for set-up people, ball retrieval personnel, a video person?
b. Is there to be a group picture? Graph check or individual audio or videotapes?
c. What is needed for range setup? Bags to range, number of balls at each station, bag racks, learning aids, chairs, table, tent, towels, refreshments, power, first-aid kit, tees, target flags, cups cut in correct places on practice greens, video, communication to shop, keys needed, emergency numbers for hospital/ambulance, several storage areas, waste container, spray paint, golf cars or transport to practice area, sunscreen, bandages, aspirin, mirror, pencils or pens for notebooks, tissues, bug spray, easel and education posters, divider boards. (Illus 15-11)



Illus 15-11
Special guests like PGA Tour professional Craig Stadler deserve additional recognition like the easel sign acknowledging his clinic.

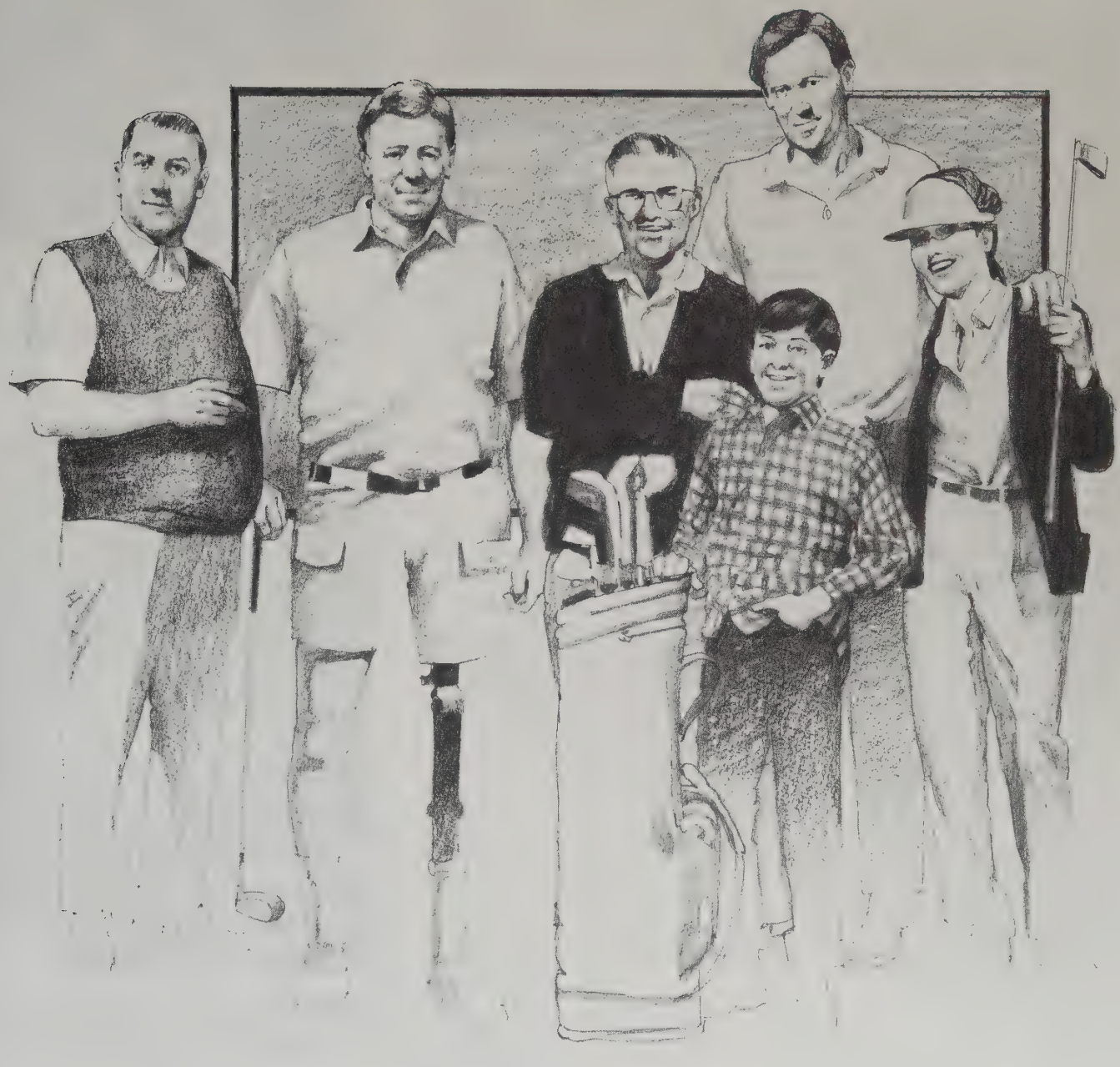
d. Other considerations besides range setup for a school director could include: marketing, budget, prizes and gifts, golf rates, function rooms, tee times, dates, hotel booking, room rates, menus, staff, printed materials for instruction, brochures, transportation, bag tags, registration procedure, information letters, opening dinner or party, lockers, communication to superintendent/accounting/hotel audiovisual staff/club manager, rooming lists, participant list, name tags, staff uniforms, rules books, rainy day program, registration pamphlets, staff job descriptions, teaching objectives and lesson plans, policies, golf club evaluation tools, lost and found, shop sales, staff and player evaluation sheets. (See Appendix 15-C.)

In other words, running a golf school requires not only good teaching but a lot of organization to be successful.

CHAPTER 16

Individual Differences/Special Populations —

Women, Srs., Jrs., Left-Handed, Physically Challenged



CHAPTER 16

Individual Differences/Special Populations — Women, Srs., Jrs., Left-Handed, Physically Challenged

In art and architecture we are accustomed to hearing the phrase "form follows function." In describing the relationship of a person's body to his style in golf, we might say "function follows form." A person's body build and composition have a significant influence on how he swings the club. Knowing that and making the proper allowances can be most useful for teacher and student.

Varieties of Human Physique

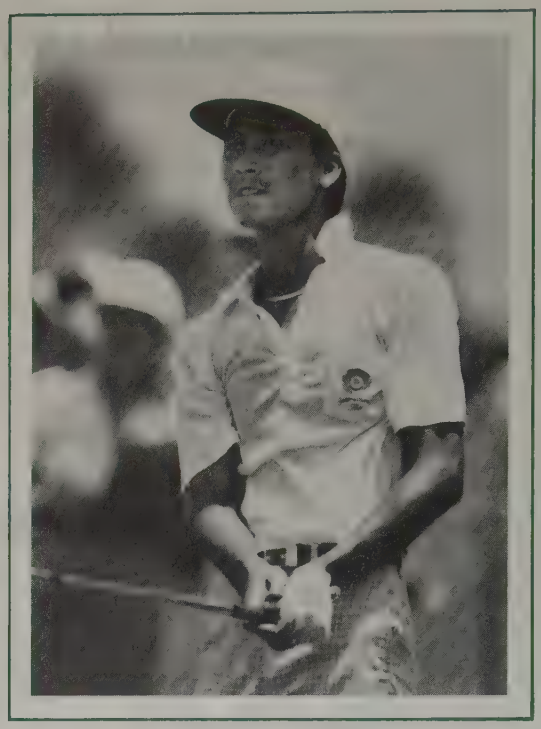
In his 1940 book *Varieties of Human Physique,* Dr. W.H. Sheldon presented a system of classifying the various shapes of human bodies. It was called "Somatotyping." Though far from a pure science, it did provide insight into performance traits and personality characteristics which might be associated with different kinds of body builds. The three major classifications were:

Endomorph — A body that is round and soft, small-boned, low in muscle tone and generous in fat deposits around the hips, abdomen, buttocks, thighs and arms. This body type is usually poor in athletic events requiring speed, agility, endurance or jumping.

Ectomorph — A body that is thin-muscled and thin-boned, frail and delicate. The trunk is short and the neck, arms and legs are long. Very little fat is on the body. This body is usually good at endurance activities and tends to shun body contact sports.

Mesomorph — Muscular and big-boned, moderate height, broad shoulders, large-chested with a relatively slender waist and hips best describes this body type. An individual with this build tends to be strong and excels in sports requiring strength.

Whereas certain sports will favor a special body type (gymnastics, swimming, basketball, distance running, etc.), golf attracts all three, even at the championship level. Ectomorphic tendencies prevail in players like Paul Azinger, T.C. Chen and Bill Rogers; endomorphic tendencies in Craig Stadler, Ed Fiori and Bob Murphy; mesomorphic in Arnold Palmer, Greg Norman and Dan Pohl. None falls purely in any one category, but each has a swing style influenced by his body form. (Illus 16-1, 16-2)



Illus 16-1
Golf attracts a variety of body types, all who can be excellent performers, such as a lean T.C. Chen...

Illus 16-2
...or a muscular Greg Norman.

Illus 16-3
At 6'4" U.S. Open Champ Andy North must work harder on rhythm to keep good balance.

If "function follows form" then a reasonable model for our student would logically be someone like themselves. It would generally be a mistake for a Davis Love III to try and swing like a Lee Trevino, or for an Andy Bean to emulate, a Chi Chi Rodriquez. People adopt a style usually for good reason. It fits them! For example, short people tend to have flatter swings because the plane of the shaft starts flatter at address with the grip end lower to the ground. In addition, the forward tilt of the upper body is less. Taller people have the opposite, a higher hand position and more bend. There is no one set swing plane for everyone for these and other reasons. The swing plane for each student should be as natural as possible, and comfortably fit the player's build.

Poor balance as well as good balance can be found in all body types. But *shorter people* find it easier to balance in golf. They are closer to their work and that is an advantage. Because their center of gravity is lower, they are less affected by wind or unusual lies and can enjoy more freedom of movement in their swing center while still returning to the ball with consistency. They are more likely than a taller person to use a "ten finger grip" as they seek leverage and rotation for clubhead speed. A flatter swing plane and shallower angle of approach is natural since the upper body is shorter and there is less bend from the waist than with a tall player. For this reason, they will tend to draw the ball. This should be encouraged if length is the objective.

Taller people have the advantage of a wider swing arc for greater distance, but have to be more concerned about balance, timing and control. The higher the center of gravity, the more difficult it is to maintain good balance — one of golf's important fundamentals. (Illus 16-3) A tall player would need to control the swing center more and would find it easier to simply turn back and through in an Al Geiberger-like fashion. (f 16-1) A natural, more upright swing favors a higher trajectory ball flight that encourages a fade. There is a tendency however, for the tall player to pick up the club abruptly in the takeaway and "break down" the left arm.

Wind and uneven lies are harder for the tall player, again because of balance. The swing tempo will tend to be slower and more rhythmical than that of a short player who generally can move more quickly.

The heavyset golfer frequently has a different natural arm hang position. For this thicker, stocky type, the arms and hands may hang in a more outwardly rotated position. If this is the case, the grip should reflect this natural arm hang position when the hands are brought together in front. If the player fights a slice from this natural position, it may be necessary to turn the left hand clockwise to show an additional knuckle. But for many, the natural hang position which rotates a bit more outward, though slightly unorthodox, is correct. If the heavyset player has short fingers, the interlocking grip could be more functional.

f 16-1 Al Geiberger's Sybervision swing is a beautifully simple model for the tall player.

The heavyset player will usually be more successful with a ball position played closer to the middle of the stance. Lateral movement for this type player can be more difficult than rotary movement; therefore, a more centered ball location would be favored. Be aware that an extended left arm at the top of the swing is almost impossible for this body type to accomplish. Bulk in the arms and chest will not permit the degree of extension available to the less massive player, so don't require this position.

"If a teacher ever tells you there is only one way to play, he's not the best."

Gary Player

In the set-up it can be helpful for the stout player to let the rear foot turn outward slightly to the right. This position will encourage the player to turn the hips more fully on the backswing, one of the hardest moves for this body type to make. Getting the player to make a good body turn rather than simply lifting the arms is critical for the stout player.

The professional should capitalize on the assets that the student brings to the lesson and try to minimize the weaknesses. Utilize the tall person's natural arc width, the small person's low center of gravity and dexterity, and the heavy person's bulk applied in a more rotary motion.

Women — Strength and Endurance

The principles that apply to the development of a sound golf swing and game are the same for both men and women. The way they are implemented may need to be different.

Lack of strength and, in some cases, lack of endurance, are two considerations which the teacher may possibly face with female students. While some women have more strength and endurance than men, this is not common. Because women have less muscle mass (roughly 2/3 that of comparable males) and because their limb levers are shorter, it is difficult to generate equal clubhead speed and, therefore, produce equal distance.

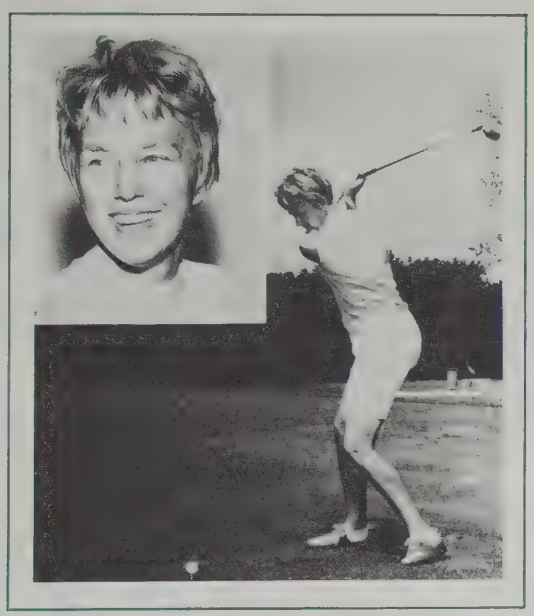
If the student lacks strength, this has several implications. One is equipment. The player's set of clubs might start with a #3 wood rather than #1 since she would be unable to get a driver shot high enough in the air to take advantage of its potential distance. Similarly a #5 and #7 wood should replace some long irons. A lightweight shaft with a low kickpoint, perimeter weighting and low center of gravity in the head may also help. The lack of clubhead speed means the trajectory on all shots will be lower since the ball has little back-spin speed and therefore less lift. Strategy on the course becomes much different for the weaker player. Approach shots to greens where a bunker has to be carried may require playing away from the bunker. Shots played from long grass or soft sand in bunkers could call for a style different than one employed by a strong player. For example, a weak woman player may not be able to hit an open-face cut shot from a bunker because the force she generates is not great enough to even get the ball out of the bunker from that kind of set-up.

So one can see that lack of strength is a disadvantage not only in the long game but, surprisingly, may also affect the short game. It is generally felt that the women professionals do not perform as well around the green as men professionals do. Why this is the case is difficult to ascertain, but could it be that strength influences control as well as distance?

Women would have muscular endurance equal to men if they had greater muscle mass. Since most don't, when given a specific work load, say lifting a 20 lb. weight, they will tire more quickly. Keep this in mind when teaching women students and prescribing numerous drills and repeated swings, such as one experiences in a golf school during long practice sessions. A *fatigued body* has difficulty performing the precise motor skill such as that required in golf. (In addition, tendonitis from "over practice" is not uncommon in the untrained golfer.)

Women's Advantages

Women golfers do have some advantages over males. A lower center of gravity helps them to balance easier. Also, having potentially greater flexibility than their male counterparts means it is less difficult for them to make a full turn in the backswing and follow-through. Greater flexibility, however, can present a problem if not accompanied by muscular support. An example of this occurs with women who are doubled-jointed at the elbow which allows the elbow to hyperextend or more graphically "to bend in both directions." This results in a loss of stability and control. In a similarly built flexible-type woman, the left wrist may also be able to assume an extreme palmar-flexed (palm toward underside of forearm) position at the top of the backswing, causing the clubface to be set in a wildly closed position.



Illus 16-4
Mickey Wright may have had the best golf swing of any player in history, male or female.

Women are generally more receptive to instruction than men. They enjoy the companionship of other ladies, so group lessons are very popular. Their golf goals may be different than the average male, so find out what they seek from the lessons before you start.

Finally, a low handicap woman's swing is frequently more appealing and technically more accurate than a man of equal handicap. Mickey Wright, LPGA Hall of Famer, who finished her competitive playing career in the early 1970s, may have had the best golf swing of any player in history. (Illus 16-4) Mechanically, the principles are the same for either sex. However, for many female students who don't have the physical talents of a Mickey Wright, these modifications should be considered:

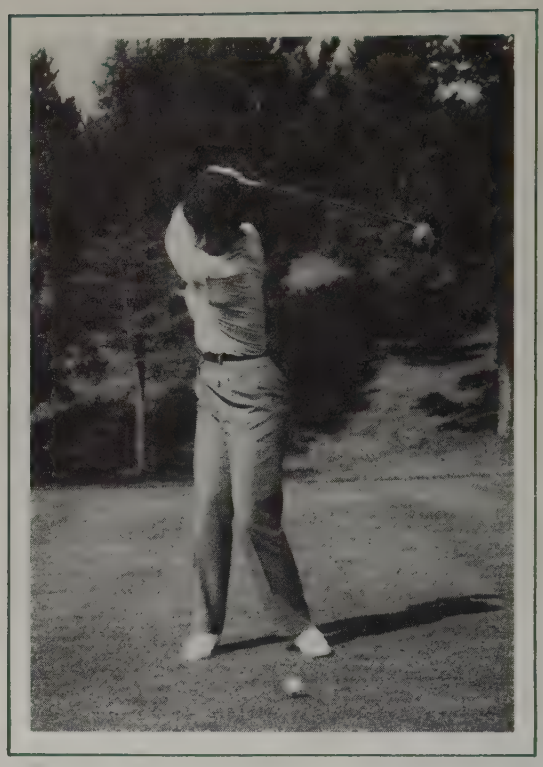
Grip — Make sure the woman has the proper grip size on her club. If the grip diameter is too large she'll fight an open-face position. If measurement indicates a smaller size is necessary, taking a .600 grip and stretching it on a .580 diameter shaft would provide a smaller grip size. Consider a clockwise rotation of the hands

(closed-face grip) so the V's point farther to the right and three knuckles of the left hand show. This common adjustment from standard helps to rotate the face so that it squares correctly at impact.

Aim — Align the clubface to the target, but the shoulder alignment slightly closed to encourage a draw for greater distance.

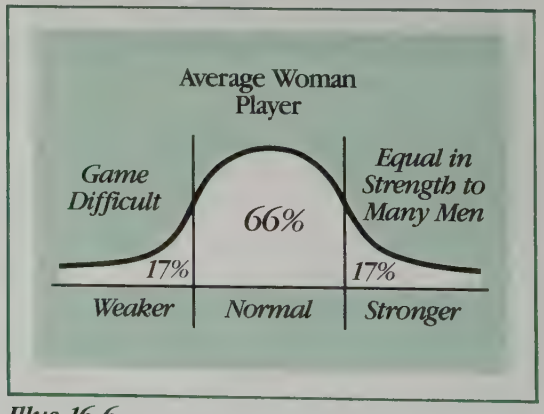
Set-up — Be careful not to let the women address the ball with seats tucked in and weight back on the heels. This is a more "lady-like" posture but no good for golf. If the woman has large breasts, and is trying to make an arm swing with forearm rotation, she'll need to close and elevate the left shoulder so her left arm can extend more over her breast at address. Then have her position her right arm (which is more folded at the elbow) slightly under and at the side of her. This will preset what will be close to the desired impact position and a path from the inside rather than steep from the top. (f 16-2) Or, she may choose to use a more connected style with the upper arms held in and rely more on body rotation to square the clubface rather than forearm rotation.

Swing — The principles stay the same for both sexes but some adjustments should be considered. Those lacking in strength will need the more clockwise closed-face grip position. This means that the left wrist will not be as flat at the top of the backswing. Most women cannot change direction as quickly as men, so, their backswings *may need* to be a bit longer in order to build up forward speed. (Illus 16-5) In addition, women's wrists will have to begin uncocking sooner in the forward swing because they do not have the strength to square the face if the wrist cock is held until very late in the forward swing.



Illus 16-5
A longer backswing may help the female golfer build up the forward speed her swing needs.

f 16-2 *Don't let the pupil take the backswing too far inside or it will encourage a steep forward swing path. Get him/her to take it in a more natural arc without separation and return inside on the forward swing.*



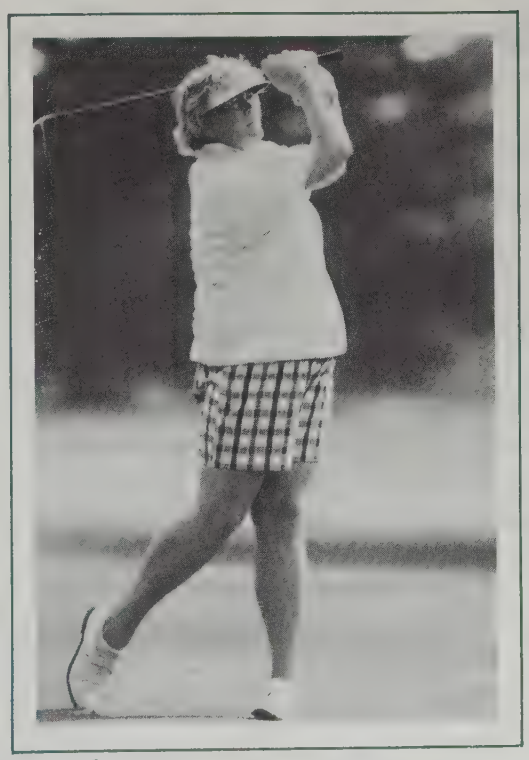
Illus 16-6
Normal distribution curve applied to the matter of strength.

Illus 16-7
Three women who hit the ball further than most men. Joyce Wethered.
from Rubs of the Green

Many of the accommodations suggested here are for women who fall in the norm area of a bell-shaped curve. (Illus 16-6) Those falling on the low end of the scale need even further accommodations and will find golf a difficult game.

For the athletic woman on the opposite side of the norm, few, if any, technique accommodations from the standard are necessary. They can handle whatever would be given to a stronger male player. (Illus 16-7, 16-8, 16-9)

Illus 16-8
"Babe" Didrikson

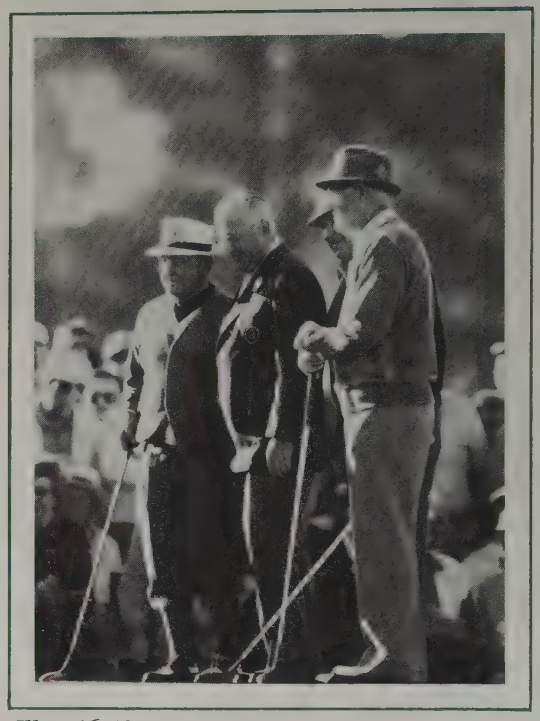


Illus 16-9
Laura Davies
Photo by Dom Furore

Seniors

The senior golfer, along with the woman player, represents one of the fastest growing segments of the golf population in the United States. The reasons have largely to do with available time, discretionary dollars and a larger, more active, healthy and long-lived senior citizen population. Are seniors more difficult to teach than other pupils? Yes, if their goal is to perform like the players they watch on television. No, if teacher and pupil recognize that the physical limitations which accompany age make it more difficult to learn than at a younger age.

Recognize first that as the body ages there is a gradual loss of strength, a greater loss of flexibility, a deterioration in the neuromuscular system so the body cannot move as quickly, and less vitality. (Illus 16-10) A poorly conditioned person at age 50 may have only one-half the physiological vitality he had as a youth. On the other hand, a well-conditioned individual might hold to a 50% or higher level past age 75. But a senior's energy level is just not as great as when he was younger. Therefore, the teacher, particularly the younger one who has not experienced the problems associated with aging, must still be cognizant of them and cannot expect his senior students to perform like Mark Calcavecchia or Nancy Lopez. There are positions in the swing that a Tour player can reach which are physically impossible for golfers with the senior bodies they bring to the lesson tee. Exercise will help those in poor condition, but some modification of teaching technique by the professional may also be needed. In addition, remember that most seniors cannot handle the practice workload given a younger player, so modify practice recommendations.



Illus 16-10
Age deteriorates skill, and no one escapes... even the greatest. Gene Sarazen, Sam Snead and Byron Nelson on the first tee at the Masters with Chairman Hord Hardin.
Photo by Stephen Szurlej

Accommodations for Age

Generally, these considerations should be made:

— Try a *more clockwise-positioned grip* since the senior's ability to get forearm and hand rotation is reduced.

— *Turn the right foot farther out* to allow for more hip turn and backswing length, or close the stance.

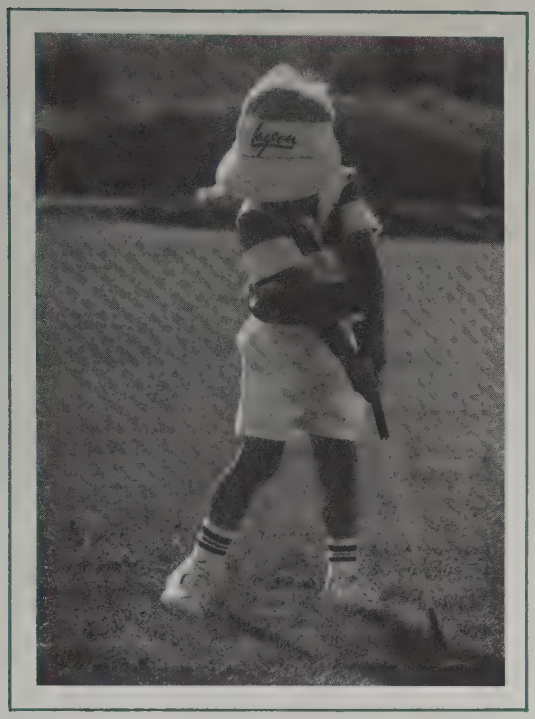
— *Place the ball in a more centered position* if necessary, since a senior's flexibility and, therefore, lateral motion, is reduced.

— *Suggest equipment that is easier to handle,* such as game improvement design, more lofted woods, off-set irons, low flex point and lighter shafts, but not extremely light heads as some head weight is needed for extension in the swing. Lighter golf shoes will help conserve physical energy. Two-piece balls may help increase distance.

— Recommend *exercise* to help maintain or increase flexibility and strength.

Illus 16-11
The attention span for the "wee player" is short, so keep the sessions the same way. PGA member Rich Lamb utilizes that knowledge.

f 16-3 One noted senior player plays in half glasses (only the top portion) so he can judge distances. Then when he looks back to the ball it is in his normal direct line vision. (See Appendix 16-A)



Illus 16-12
Nonetheless, 3 yr. old Robby Grayson, a talented "little person", can develop remarkable skills if the teaching is simple and the equipment "right."
Photo by Daniel S. Brooks

Illus 16-13
What a swing!
Photo by Daniel S. Brooks

— Suggest they get the right kind of glasses. (f 16-3) If they need bifocals, make sure the lower portion focuses at the distance to the ball in the set-up position.

— Recommend they soak their hands in warm water before play if arthritis is a problem and see that the club's grip size fits their hands.

— Suggest *more practice on their short game.* As Sam Snead has commented, "You can't make a good body turn if your muscles won't let you, but you can still pluck a lot of chickens with good chipping and putting."

— And when all else fails, "Use more club."

General Characteristics of Age

The following aging chart may remind the professional to be attuned to age differences in his pupils.

Age	*8-12*	Attention span short. Not yet physically and mentally mature, but can develop good skills. Mimicry level high. (Illus 16-11, 16-12, 16-13)
	13-20	Ideal age for learning. Becoming physically and mentally mature. Time available for practice and plenty of energy.
	21-30	Greatest physical strength revealed. Problem finding time to practice and play as demands of business or family are heavy.
	31-40	Maturing. Ability to appreciate golf's subtleties increases. Being more established in community makes golf more likely.
	41-60	Gradual lowering of physical abilities but more time to practice and play. Realities of life are setting in and may be questioning self-worth. Needs moral support in activities like golf.
	61-80	Physical deterioration and energy rapidly diminishing for most. Generally realistic about abilities and resigned to level of play.
	Over 80	A bonus to be enjoyed. Will find the rare individual who has taken splendid care of himself and is able to shoot his age.

Left-handed

It is estimated that roughly 10-15% of the people in the United States are left-handed but only 3-6% of our golfers play left-handed. (f 16-4, f 16-5) One reason the second figure is smaller is that many left-handers are still encouraged to play right-handed. Is this a wise decision? One reason frequently offered is that if a left-hander swings right-handed, then the leading arm (the left) in the forward swing will be stronger, which is to his advantage. If that logic is sound, then why don't all natural right-handers play left-handed? The reason is this: how one chooses to swing should be based on a criterion other than a strong leading arm. The choice should always favor the player's natural body rotation strength in swinging an item such as a bat. From which side does the student demonstrate the greater strength and coordination of the rotary action of trunk, hips and back, those muscle groups which are used in slinging, throwing and striking? Find that side and go with that strength.

f 16-4 In some countries or regions of countries there are larger left-handed golf populations than normal. In Canada, with many hockey players, there are more left-handed golfers. And at Newton-Moor Golf Course in Scotland, 55% of the golfers are left-handed because they play a stick-and-ball game called Shinty from the left side.

f 16-5 Address for the National Association for Left-Handed Golfers:
NALG
10105 Hamerly
#714
Houston, TX 77080

A Simple Test

With a new student who is a beginner and unsure about his handedness (eats and writes left-handed, throws right-handed, but bowls left-handed), give this simple test. Ask him to take a club, grip and swing it as though it were a baseball bat, first right-handed, then left-handed. Watch carefully and note on which side the student makes the most natural and most powerful swing. *Go with that side,* be it left or right. (f 16-6)

If the student is equally good (or bad) left and right, check his throwing motion with both hands. Again, if the throw shows equal skill, go with the right hand because that's how instruction is written and there are few left-handed professional players to model. Instructors see more right-handed students and are generally more comfortable teaching them.

f 16-6 Several PGA Tour players are naturally left-handed but play right-handed. Among them are Johnny Miller and Curtis Strange.

Right-Handed Advantage

Bob Charles, the only left-handed golfer to ever win a major golf championship (British Open 1963) has flatly stated that the strategy technique and physical demands of golf are no different for the left-handed golfer than for the right-handed golfer. (Illus 16-14) (f 16-7) There are times when left-handed clubs were either scarce or poorly designed. That time has passed. There are not as many brands or models to choose from, but the available left-handed clubs are certainly of equal quality to right-handed. Older course designs may have encouraged the left-hander to play a weaker tee shot, the fade, since hooking for him on counterclockwise layouts was flirting with out of bounds. Today's courses use a variety in layout which balances any such tendencies. This should no longer constitute a drawback to being left-handed. Left-handed people may seem to be harder to

f 16-7 Other than in games like cricket and golf, requiring two hands, Bob Charles is naturally right-handed.

Illus 16-14
Bob Charles, the premier left-handed golfer in the game's history.

teach because the professional is not as accustomed to seeing left-handed swings. Nonetheless, it is easier to demonstrate to a left-handed person because the teacher can face him directly and swing. This provides the student with a mirror image. The teacher should stick to the same golf swing fundamentals and get used to watching more left-handed swings. One way to improve the eye for helping left-handed players is to take a sequential series of slides of a famous player's swing like Nicklaus, Watson and Hogan, and reverse them so they appear left-handed on the screen. This will help accustom the eye.

Junior Golfers

PGA Professionals can be proud of the leadership role their association has taken in junior golf. In 1978 the PGA Junior Golf Foundation was founded and in the first ten years raised some $2,750,000. This money has been used for a broad variety of services, programs, booklets and visual aids to stimulate junior golf participation. The scope of the PGA's involvement is far-reaching. They have created a "Clubs for Kids Program," the PGA Junior Golf Academy, the School Development Program, the PGA National Jr. Championship, the Jr. Medalist Teaching Program, publications such as *Rick Tees Off, First Swing* and the *First Swing Curriculum Guide, The Cadet and Caddy Program,* and films on junior instruction, academies and competition. (Illus 16-15, 16-16) One of the directions of future PGA junior activities will be to serve as the leader in coalition efforts to bring the resources from golfing agencies and associations to a Community Golf Program Design.

Illus 16-15
One of the PGA's junior golf promotion programs is Clubs For Kids. The Minnesota PGA gave out over 200 clubs on this day.

Illus 16-16
The PGA National Academy of Golf is conducted by The PGA of America at several sites across the country.

Illus 16-17
Headquarters for the PGA of America which houses a junior director and department.

Much of the present effort of the national organization is directed toward encouraging and supporting the local grass roots program in schools and recreation departments at daily fee courses, private clubs, military bases, par 3's and executive courses, golf ranges and resorts. Recognizing that our future golfers must come from our youth, the PGA is striving to develop opportunities for youngsters to get interested, exposed and instructed in golf. The PGA, its sections and its members constitute *the* major force in promoting junior golf in the United States. (Illus 16-17, 16-18, 16-19)

Illus 16-18
The PGA of America has several sections, like the Middle Atlantic, which sponsor junior golf camps.
Photo by Joe Gambatese

Illus 16-19
Getting them started young is PGA professional Mike Dowaliby's theme.
Photo by Jared Howe

The Right Motives for Junior Golf

But developing players and programs isn't enough, the programs should have the right motives. A properly conceived and conducted program of junior golf activities has the potential to do a great deal more with young people than improve their golfing skills. The game of golf has exciting potential for personal growth and learning. This is particularly true when adults in these programs work with young golfers and help them mature and grow as individuals. (Illus 16-20) (See Appendix 16-B)

Illus 16-20
Al Geiberger speaks to juniors about golf and life.

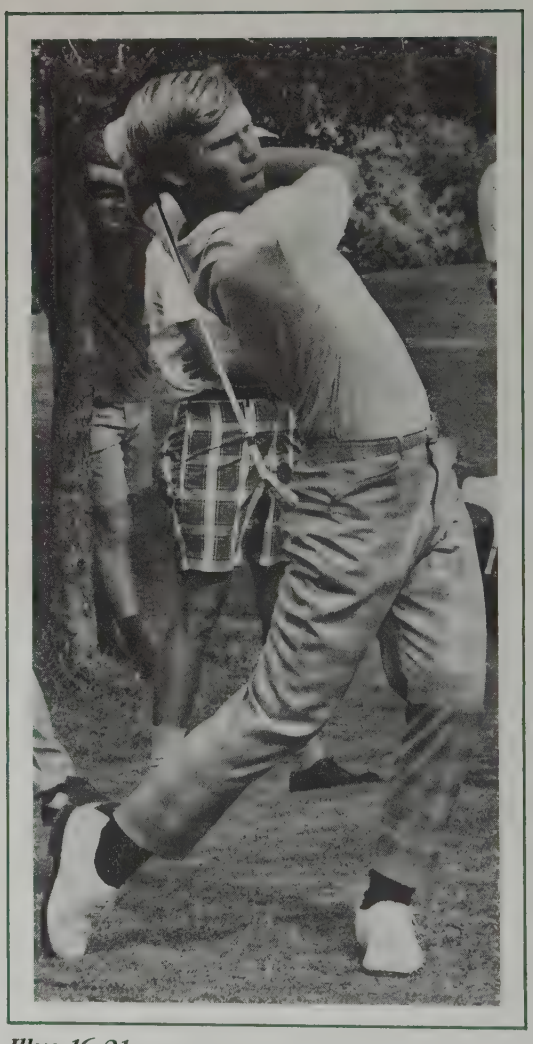
Certainly, the improvement of the golfing skills of youngsters is one objective in conducting any junior program. Observing his own progress brings pleasure and a feeling of satisfaction that is an important experience to any youngster. Working on skills also has its share of object lesson opportunities, such as being exposed to the undeniable law of effort and reward and its relation to success and failure. Yet skill improvement, even with its obvious values, should not be the only objective in conducting junior golf. There are goals of greater value than low numbers on a scorecard that can come through a youngster's golfing experience. Fairness and equitable treatment as taught in the *Rules of Golf* are equally applicable to the rules of life. Courage, perseverance and self-control, which are an elemental part of achieving playing success, are values which can be strengthened in the youngster's character under competitive golf situations. Playing junior golf can contribute to values while the participants are having fun, being creative, expressing imagination and improving their self-esteem. It is the recognition of these extra special goals, and the effort expended toward achieving them, that transforms junior golf activity into a junior golf *program.*

Additional solid information can be found in the Appendix 16-B, but a starting point for the reader could be this comment directed toward interested parents and leading to a series of questions concerning the need for junior golf:

> There is a need in junior golf for more and better programs. If you have golf in your community or at your course, but the juniors seem small in number, poorly skilled and uninformed concerning the rules and amenities of the game, then you might start looking around to find out why. The following ten questions may help you find some answers:

How Does Your Junior Program Stack Up?

1. Does your golf course have a regular junior day or morning that is scheduled each week during the summer months?
   ☐ Yes ☐ No
2. Do your juniors have an organization with a statement of purpose?
   ☐ Yes ☐ No
3. Is there a schedule of events or season's program for the juniors that is posted or printed?
   ☐ Yes ☐ No
4. Are lessons or clinics offered on a regular basis for junior players?
   ☐ Yes ☐ No
5. Is there a substantial weekly junior turnout at your course?
   ☐ Yes ☐ No
6. Is there an area, a room, or a bulletin board set aside specifically for juniors?
   ☐ Yes ☐ No
7. Is there an active junior golf committee at your course which is representative of the adults, the directors or owners, the golf course staff and the junior players?
   ☐ Yes ☐ No
8. Are your juniors required or given an opportunity to take tests in skills and rules and etiquette to achieve certain privileges at the course?
   ☐ Yes ☐ No
9. Does your junior program produce players who participate on high school golf teams or who distinguish themselves in district or state competition? (Illus 16-21, 16-22) (See Appendices 16-C and 16-D)
   ☐ Yes ☐ No

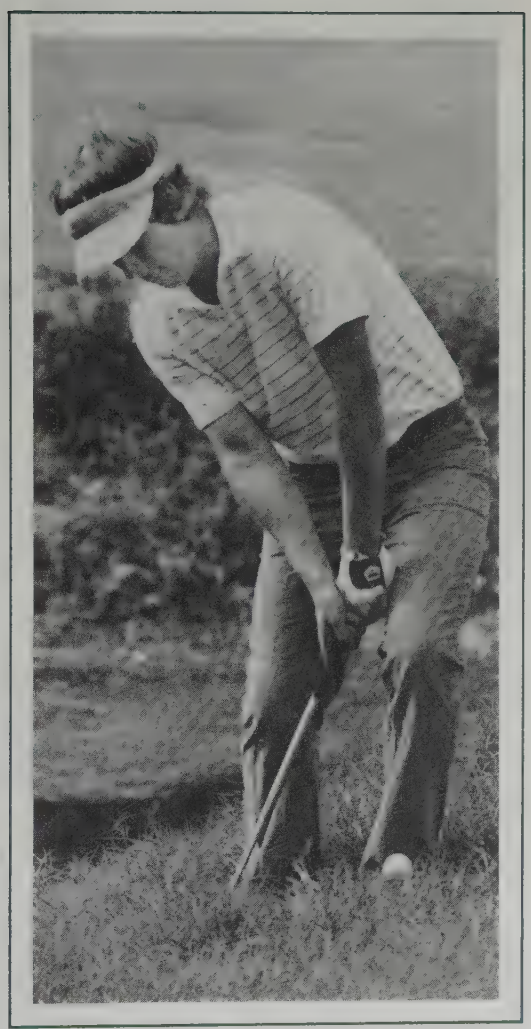


Illus 16-21
Some junior golfers grow into Tour stars, like Ben Crenshaw...as a junior.

10. Does your golf course hold an annual junior championship for its own players?
☐ Yes ☐ No

11. Does your junior program treat all youngsters, boys and girls, highly talented and less talented, with equal dignity and encouragement? (Illus 16-23)
☐ Yes ☐ No

12. Does your junior program have as major objectives fun and the building of a participant's self-esteem?
☐ Yes ☐ No



Illus 16-22
...and Mark Calcavecchia...as a junior.

Illus 16-23
More young girls should be encouraged to play golf. It is a great game for women.
Photo courtesy of The Golf Foundation, Great Britain

Objectives for the Junior Golf Program

Before undertaking any project like developing a junior golf program there should be a clear understanding of objectives. Here is a sample:

A young golfer should:

A. Be taught some of the game's history and traditions, rules, expected etiquette, and potential values.

B. Have the opportunity to receive regular competent, enthusiastic instruction on the techniques of swing, the fundamentals of the short game and on-course play. (Illus 16-24)

C. Be provided with well-organized and conducted competitive experiences in which winning assumes a sensible perspective.

D. Be given a program which encourages the broadening of friendships and social skills.

E. Be exposed to some of the positive values that golfing situations can provide, e.g., honesty, courage, courtesy, fairness, empathy, responsibility, appreciation and perseverance.

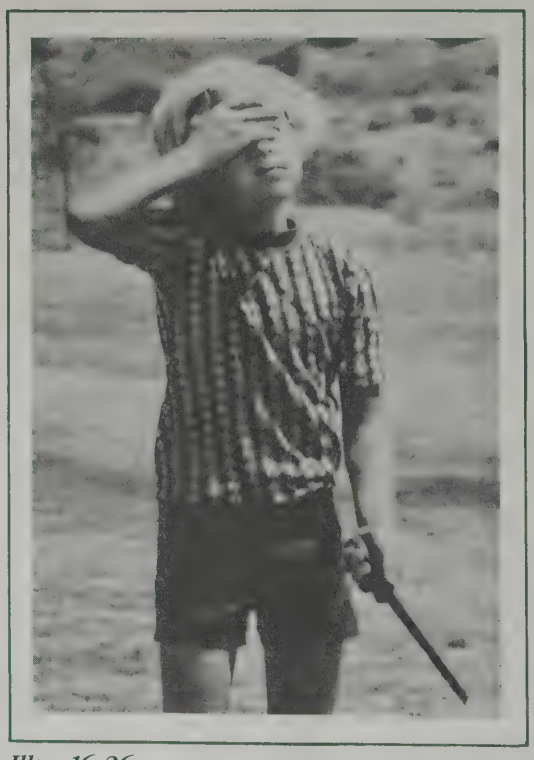
F. Be afforded the opportunity to grow close to and to learn from capable and responsible adults.

G. Play for the sake of playing and not always for an award, a title, or a rating. Young golfers should be having fun! (Illus 16-25, 16-26)

The positive experiences suggested in these objectives do not happen automatically when a youngster picks up a club and tours the course a few times. The claims that are made about golf, or any other sport, in respect to character development are not guaranteed. Positive results are a product of purposeful effort. Plan for them to happen. Don't just expect them to. (See Appendix 16-E)

Illus 16-24
PGA professional Kevin Compare working with a junior group..

Illus 16-25
They ought to be having fun.



Illus 16-26
But even juniors have their disappointments.

Illus 16-27
Juniors are fun to work with.
Photo courtesy of Svensk Golf

f 16-8 *There are courses in the country designed specifically for junior golfers. One that has been particularly successful is run by the Parks Department in Lincoln, Nebraska. A homemade course can be created on the driving range or a field using modified golf balls or tennis balls. The Modified Golf Association promotes play on short courses using 50% distance balls. Also, the Golf Fun Corporation has developed short courses for people new to golf. Their game uses standard clubs but a larger ball and 12" diameter cup on the green.*

f 16-9 *A sampling of contests created for the PGA Junior Golf Academy is available through the PGA Jr. Golf Department.*

It is recommended that the reader secure a copy of the PGA Junior Department publication *First Swing* and the accompanying *Instructor's Guide.* These are outstanding instructional materials written for the young player. They contain a teaching approach geared specifically to juniors and are written in such a way as to keep the teaching simple, effective and fun. In the meantime, here are some reminders regarding the junior population.

1. *This group can be more heterogeneous* (dissimilar) *than any adult group.* With normal age ranges from 8 to 18, the spread in physical and psychological maturation levels is tremendous. Even children of the same chronological age, twelve for example, can vary four or more years in physical development. So understand that age alone, though practical, is not the perfect equalizer. It is probably wise for instruction sessions to divide the groups first by age and then by ability within the age grouping.
2. *A junior's attention span is shorter than an adult's, and the interest in detail is less.* Keep the verbal instruction short and the fundamentals they are expected to learn clear and simple. Provide visual and kinesthetic instruction through the use of pictures, video, demonstration, drills and learning aids.
3. Be sure to *set and demonstrate the rules regarding safety* before putting a club in anyone's hand.
4. *See that a junior has properly fitted equipment* so as not to impede his learning. Modify or substitute when grips are too large and clubs are too heavy or too long.
5. *Instruction should lead to the chance to play.* Golf lessons with no opportunity provided to apply them on a golf course, any kind of course, will have little appeal. (f 16-8)
6. *Make the instruction fun.* There needs to be work in order to progress, but "fun work." Create contests and competitive games that fit into the instruction program. Youngsters will return if they are having a good time. (Illus 16-27, 16-28) (f 16-9)

Illus 16-28
And, some of them really love golf.
Photo courtesy of Svensk Golf

The Physically Challenged Golfer

When we speak of handicaps in golf our thoughts first turn to the system of identifying playing ability (18 handicap, 2 handicap) and it's application to equalizing competition. But there are golfers with other types of handicaps, the disabled, disadvantaged or physically challenged golfer who has a physical or mental impairment: amputees (single, double or multiple), people with congenital birth defects, victims of accidents, stroke victims, paraplegics, mentally retarded, blind, deaf, and those with degenerative or debilitative diseases. One of every seven people in the United States has some form of disability. Most are capable of playing golf and enjoying it. Proficiency can be a long-term goal but simply getting out and "doing," regardless of how well one performs, can be an exhilarating experience for the physically challenged person. (Illus 16-29, 16-30)

Golf — A Lifesaver

Consider this story. A middle-aged former Air Force test pilot suffered a stroke that left one side of his body nearly useless. From an active outgoing person, he became a recluse on the verge of suicide. Then a PGA Professional in Southern California, John Klein, encouraged him to come back to golf. Klein worked with him to help modify his style. The experience was not without frustration and discouragement for the player. But Klein was optimistic, patient and reliable. Progress was made to where the student began to enjoy golf again, and it gave him something to look forward to. In his own words, "It saved my life." There is a group of loyal professionals in America who have devoted many hours of their teaching time to working with the physically challenged. The intrinsic rewards of such an undertaking make it extremely fulfilling. Dr. DeDe Owens is one such professional who in her book, *Teaching Golf To Special Populations,* cites the importance of an initial assessment with the handicapped student who seeks instruction. That assessment covers three major areas:

1. *The nature of the disability*
   It is important for the professional to gain some basic knowledge about the disability with which he is dealing and what physical, psychological or medical limitations it imposes. When a practice program is developed it should be cleared with the student's doctor or physical therapist. The medical person may not be a golfer and may consider golf a sedentary activity. The professional needs to make him/her aware of the type of movements the patient will be asked to make.
2. *Capabilities, limitations and experience of the individual*
   The prospective student's previous experience with other sports, physical activities or with golf prior to his handicap can help the professional communicate. Whether the disability occurred at birth, age 10, or age 35, will have an influence on the student's ability to relate to these new experiences. Also, one disabled player, such as a single-leg amputee, may need to be handled entirely differently from another single-leg amputee

Illus 16-29
At a disadvantage? These athletes would rather just say physically challenged.
Photo courtesy of the National Amputee Golf Association

depending upon which leg is missing; further, is the leg amputated above or below the knee? What type of prosthesis is used? All of these factors, and others, will determine how *that* student is to be taught.

3. *Personal Desires and Goals Related to Playing Golf*
Finding out the student's motive for taking instruction is important. If he/she has been "sent" by a physician, family member or therapist there may not be a very high level of enthusiasm. It is up to the professional to try to point out the advantages — social, physical, emotional or just plain fun — that can brighten his/her life. Finding a partner for the physically challenged to learn with can be a great motivator.

The professional is probably more important in determining the success of the lesson program for people with disabilities than for any of the other student populations he reaches. (Illus 16-31) The reason is motivation. While all individuals must ultimately provide their own motivation, an enthusiastic, supportive, patient and persevering teacher means so much in sustaining motivation for the disadvantaged golfer who may need additional encouragement.

Illus 16-30
These players do not let a disability keep them from their golf.
Photo courtesy of the National Amputee Golf Association

Illus 16-31
PGA member John Kline and physically challenged student.

A Special Place

The one facility which regularly teaches golf to the full gamut of disabled is the Joe Spoonster Golf School at the Vocational Development Center for the Handicapped in Akron, Ohio. (f 16-10)

While this facility specializes in the blind, its program deals with any disability. Joe Spoonster Jr., the director with 20 years experience who has replaced his founder father, says, "One of the most important values of teaching the handicapped comes from them simply being part of the regular population and participating, being included. Helen Keller said it best, "Blindness is not so terrible. The great tragedy is the isolation it imposes on people."

Video Help in Dealing With the Physically Challenged

Two videos are currently available which deal with helping the physically challenged golfer. PGA professional Peter Longo, with Wilson & Co.'s help, presents a very informative and entertaining video for the blind, paraplegic and wheelchair golfer, one-armed and one-legged player with and without prosthesis, and the arthritic. Longo also shows the alterations that should be made in equipment for these people. He clearly demonstrates that golf is a game everyone can play. (f 16-11)

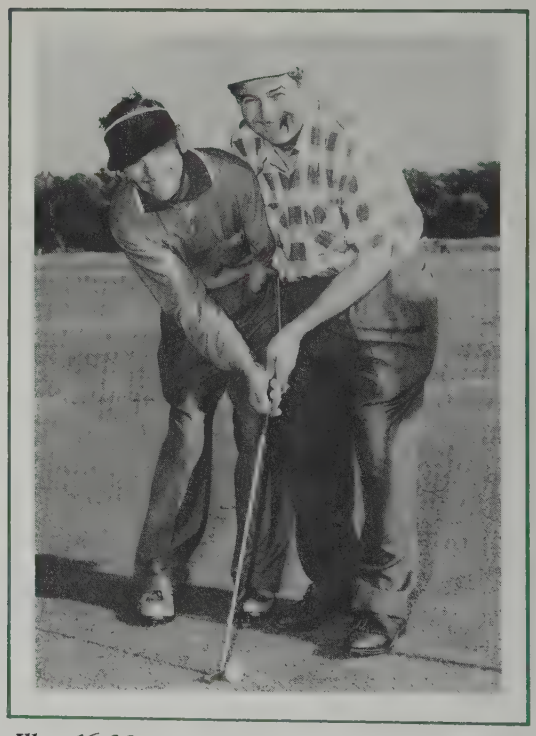
Another tape, entitled "Never Say Never," features Kathy Corbin. (f 16-12) This PING-sponsored production presents golf instruction for a variety of the physically challenged such as those previously mentioned plus the deaf (closed-captioned) and stroke victims. Corbin is effective in her enthusiastic and empathetic approach.

f 16-10 *Address:*

Ohio Vocational
Development Center
332 S. Main St., Akron, OH 44308
c/o Joe Spoonster, Jr.

f 16-11 *Peter Longo's tape "Challenge Golf" is available from:*
Motivation Media, Inc.
Audio Visual Marketing
Communications
1245 Milwaukee Avenue
Glenview, IL 60025

f 16-12 *Kathy Corbin's*
"Never Say Never"
1309 E. Northern #308
Phoenix, AZ 85020



Illus 16-32
Former star performer Jimmy Nichols, a one armed player, hammed it up with fellow single arm amputee Ralph Ebling saying, "two hands are better than one".

Physically Challenged Star Performers

Even though high-level competence is not the primary concern, the fact is that physically challenged golfers can become quite proficient. PGA Champion Tommy Armour had one eye, Ernest Jones one leg, and Jimmy Nichols, who played in six U.S. Opens, one arm. (Illus 16-32) (f 16-13)

Dennis Walters, the world's only paraplegic professional golfer, travels the globe performing with his show of unusual shots and trick shots played while sitting in a golf car. Walters can play in the middle to high 70s. (Illus 16-33) Pat Brown, a world blind champion from New Orleans, once shot an incredible 74 at Mission Hills in Palm Springs. In the national amputee championships, players like Corbin Cherry, Frank Cothran, Bill Harding and five-time National Champion Bick Long, have broken par though missing one arm or one leg. There are many physically challenged people whose lives could be enhanced by golf. They just need someone to help them. (f 16-13, f 16-14, f 16-15)

The PGA of America, through its Teaching and Growth of the Game Committee, assists individuals and organizations that fall under the physically challenged category. They also have a list of PGA Professionals who have experienced working with the disadvantaged or physically challenged.

f 16-13 *The address:*
National Amputee Golf Association
c/o Bob Wilson, Executive Director
P.O. Box 1228
Amherst, NH 03031

f 16-14 *U.S. Blind Golfers Association*
c/o Pat Brown
300 Carondelet Street at Gravier
New Orleans, LA 70130

f 16-15 *PGA of America*
c/o Henry Thrower
Box 109601
Palm Beach Gardens, FL 33410
407-624-8400

Illus 16-33
Dennis Walters in his show which has been called "Golf's Most Inspiring Hour".

CHAPTER 17

Physical Training

For Golf

CHAPTER 17

Physical Training For Golf

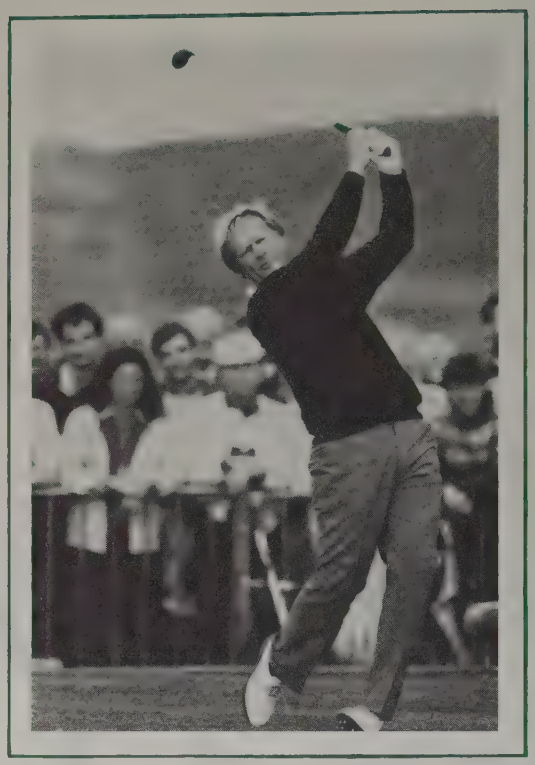
Playing golf is a physical athletic skill requiring strength, flexibility, neuromuscular coordination and, to a certain degree, cardiovascular and muscular endurance. Players with low levels of muscular strength and a limited range of motion will be severely hampered in their ability to swing, and potential to score.

The golf swing is a mechanical performance. But if the machine (the body) performing the action is underpowered, has poor stability and parts that don't function, the result will be neither efficient nor consistent. Gradually, golfers are coming to realize that better maintenance of their bodies will produce better results on their scorecards.

How fit does one have to be to play golf well? More so than one would think. Physical deterioration or general lack of conditioning is the number one factor that causes the regular playing adult handicap to go up. If a player's handicap was at one time lower than it is now and he is still playing with the same frequency, look first to body condition for the answer. Loss of strength and flexibility will alter technique. When hands and forearms lose strength or suppleness, and the straight ball turns into a slice, a player automatically starts to make adjustments in aim, grip and swing path. What he might better have checked is the conditioning of his body.

Conditioning and the Tours

Don't be fooled by seeing a few potbellies on television golf. Most of the PGA Tour players are pretty fair athletes with a high degree of strength and flexibility related to their sport. Even those wearing a portion of their midsection outside their trousers have strong arms, hands and trunks with greater than average flexibility. Far more Tour players are fit than not. (Illus 17-1, 17-2, 17-3) Physical training for golf is slowly being recognized on the Tour as an important factor in maintaining playing ability. The most visible evidence of this statement is the presence of fitness trailers on the PGA Tour, Senior PGA Tour and LPGA Tour. Deane Beman, Commissioner of the PGA Tour, and a former Tour player himself, recognized the need for improvement in physical training when he said, "perhaps the single



Illus 17-1
Tour golfers are athletes who possess greater than average strength, flexibility or both, like Jack Nicklaus...

Photo by Stephen Szurlej

Illus 17-2
...or Nick Faldo...

Photo by Stephen Szurlej

Illus 17-3
...or Paul Azinger.
Photo by Stephen Szurlej

most neglected aspect of a PGA Tour athlete's daily regimen is his attention to physical conditioning and the prevention of injuries, something athletes in most other sports take for granted." But Beman was also able to see that one of the reasons Tour players failed to adopt a solid conditioning program was the difficulty in finding adequate convenient facilities in a different city each week. Thus, was born the idea of a mobile fitness center. Diversified Products (known as DP in the fitness industry) came forward as a sponsor. They funded not only the 45′ x 17′ mobil units but also research to develop a "best" training program for the world's most skilled golfers. The Centinela Hospital Medical Center was selected as the group to conduct research under the direction of internationally known orthopedist, Dr. Frank Jobe. (Illus 17-4)

In 1985, Tour professionals, club professionals and long-driving champions were tested with electromyographical equipment to determine which muscle groups were of particular significance to the skilled player. As a result of that research, the booklet *30 Exercises for Better Golf* was produced and is used as the basis for the program recommended to players of the regular and senior Tours. This program offers a conservative approach with exercises of low intensity emphasizing prevention and rehabilitation. Thus, it is also quite useful for the amateur golfer who may be poorly conditioned, or a senior facing physical deterioration. The player who is already quite fit and desiring greater strength gains may need to seek additional training references.

Illus 17-4
Fitness trailers are now seen on the PGA Tour, PGA Sr. Tour and LPGA Tour. Here is Dr. Frank Jobe in front of one of the portable units.
Photo by Jeff McBride

The mobile facility is attracting a steady cadre of regulars who sing its praises. (Illus 17-5) Ray Floyd likes "the consistency in care with people who know you and you can trust." John Mahaffey says, "The exercise program goes a long way toward preventing injuries." And Gary Hallberg observes, "I think this will extend the careers of the older players."

Illus 17-5
The PGA Tour Fitness Trailers are equipped to train and rehabilitate. (PGA Tour professional Gil Morgan on an exercise bike.)
Photo by Jeff McBride

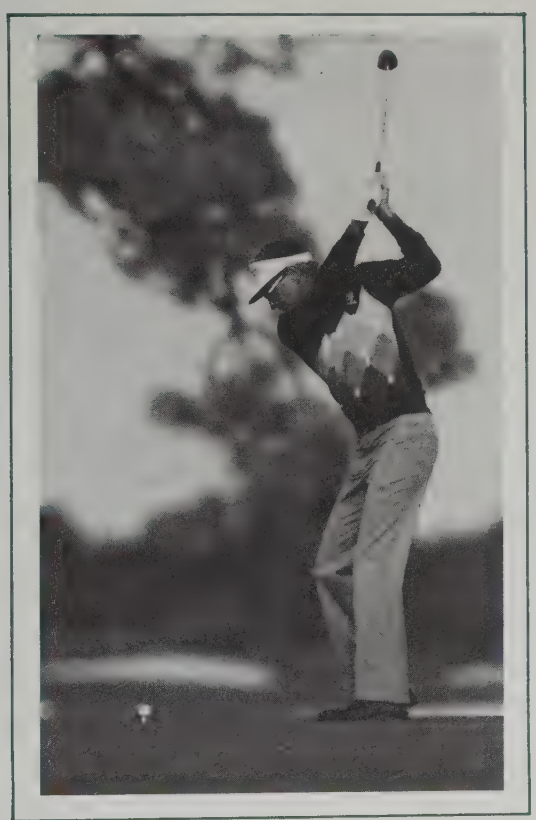
Hallberg's observation is validated by Senior Tour stars Bob Charles and Bruce Crampton. Charles, former British Open Champion and 1988 and 1989 Senior Tour leading money winner says, "The Senior Tour has become so competitive that it's essential that you be in peak physical condition. Someone not in good shape will find out just how important it can be." (Illus 17-6) When preparing originally for his senior debut, Crampton asked the regular Tour physical therapist to formulate a program for him to increase his strength and flexibility. "My strength has increased. I have added flexibility and I'm more relaxed. After a 40-minute workout, I feel great." Crampton won seven times in 1986, setting a Senior Tour winnings record. The potential gains for any player are relative to the present condition of the body. The Tour players are already reasonably fit, because they walk the golf course every day and exercise by hitting many balls. The weekend golfer generally is not fit. For the player in poor physical condition (particularly the amateur senior golfers, both men and women), improvement in performance as a result of proper training could be quite significant.

What's Best?

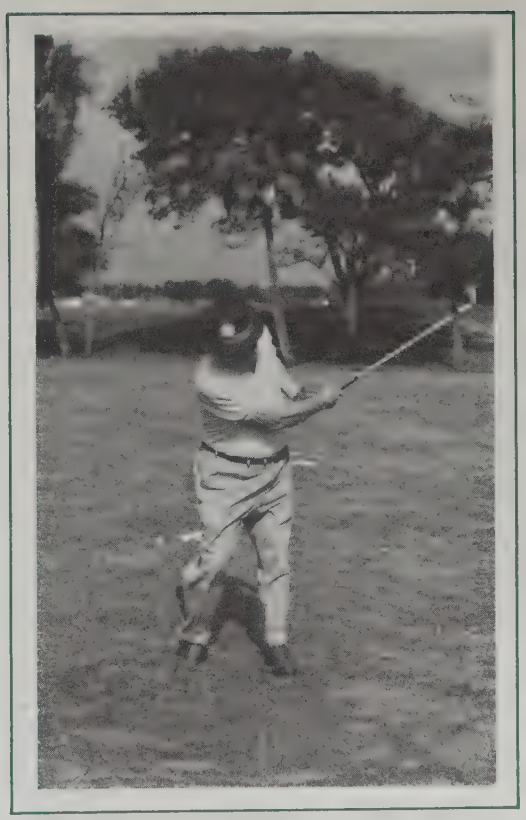
"You'll be able to hit the ball more soundly and efficiently if you use the exercises in our book. For the amateur golfer, that means getting better distance and better accuracy."

Paul Calloway
(Physical Therapist
Tour DP Fitness Van)

No one person or group (even Centinela) has *conclusively* demonstrated that its physical training system is the best for improving golf performance in all body types. Claims by others may be made to this effect, but the fact is that the same prescription does not work for everybody. For example, a senior player may have above average strength but lack flexibility. (Illus 17-7) Conversely, a female player may possess good flexibility, but lack strength. Each needs a training program geared to his or her weakness(es). Training to improve physical as well as technical deficiencies in the swing will be an important part of a serious golfer's program in the future, but it should be tailored to his or her needs.



Illus 17-6
A regular client of the Srs. PGA Fitness Trailer is Bob Charles.



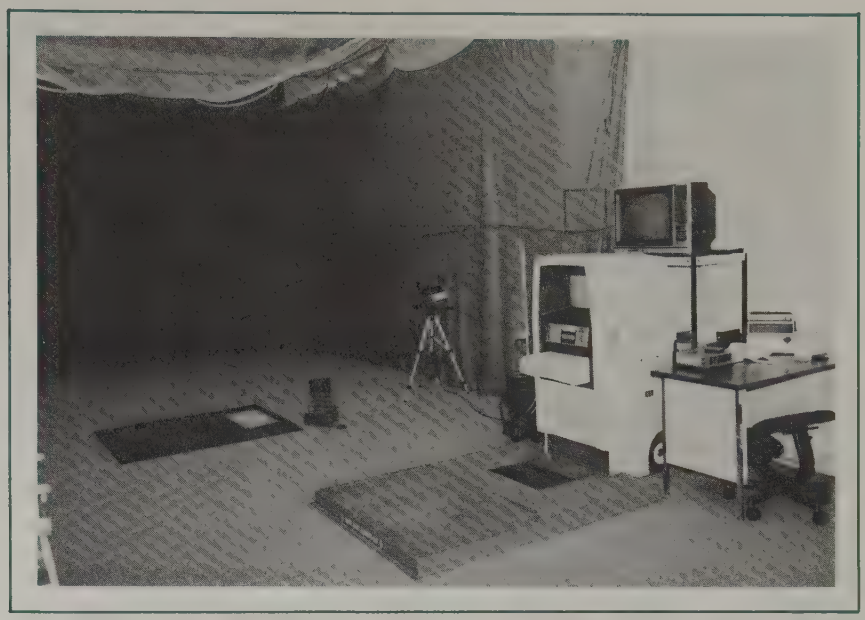
Illus 17-7
The most common physical handicap confronting senior golfers is the loss of flexibility.

What's Available

There are some isolated islands of enlightenment within the private sector that are offering golfers a service matching the Tour players. One such location is "Golfers Fitness and Swing Center" in Jupiter, Florida. This facility is a multifaceted operation which could certainly serve as a model for others in the country. It is directed by Dr. Rolla D. Campbell Jr., former professor of orthopedic surgery at Cornell University Medical College, and brother to internationally famous amateur golfer Bill Campbell of Huntington, West Virginia. The Fitness Swing Center's program includes: a) a physical assessment of all clients by Dr. Campbell, b) computer swing analysis by a staff PGA Golf Professional, c) regular individually supervised training sessions in the sports medicine gym by a fitness professional.

Clients may practice their swings and get feedback with the aid of a Sportek Computer and video equipment plus a host of other learning aids. (Illus 17-8, 17-9) This is in addition to doing their physical training routine which has been selected for them by the clinic staff. In a Florida geographical location where senior citizens abound, it is no surprise that the majority of their clients are experienced golfers looking to rejuvenate their games by rejuvenating their bodies — and that's what those participants are doing.

Illus 17-8
A view of the physical training equipment from "Golfers Fitness and Swing Center."
Photo courtesy of Dr. Rolla Campbell



Illus 17-9
Looking at the swing practice center area of the facility which also has an overhead camera.
Photo courtesy of Dr. Rolla Campbell

Professional's Responsibility

More and more golfers will be asking their golf professionals for advice on physical training to improve their games. If this is not one of the professional's areas of expertise, he can refer to some of the resources listed in the Appendices for this chapter. The following selected information should be helpful for the professional's general understanding of the problem.

Fitness Elements

There are four fitness components which the golfer can develop to improve his golf: 1) strength, 2) flexibility, 3) muscular endurance and 4) cardiovascular endurance. Strength is essential to producing distance, but it must be a specific kind of strength that allows the golfer to swing a golf club with speed. Flexibility is essential in order to allow the body to reach certain positions that can maximize use of the muscular strength available. In golf, strength without flexibility is literally useless. Muscular endurance means that the muscles can still perform with efficiency even after many holes of golf or days of use. Cardiovascular endurance is having the heart and lungs operate efficiently enough to allow the player not to tire easily.

"That golf is not good exercise is a myth worth debunking...It should not be sold short as exercise."
Dr. James A. Nicholas

Strength

To develop strength overload is needed. Overload makes the muscles do more work than that to which they are accustomed. This is accomplished by increasing either the weight of the load lifted or the number of times it is lifted. An example would be to load a barbell with the amount of weight that can be pressed over the head eight times consecutively. Do that on Monday, then nine times on Wednesday, and ten times on Friday. The body needs the in-between days for resting and rebuilding the muscle tissue. On the following Monday, add five pounds and go back to eight repetitions. That's overload.

Intensity of workout is something that must be treated very carefully. A classic mistake is working out too hard before being adequately trained, causing fatigue or injury. *Train, don't strain.* If a person is out of condition and it has taken twenty years to get that way, he or she should not try to reverse that condition in two weeks at the risk of becoming an exercise dropout. The anticipated feeling of dynamic health will turn into one of fatigue and soreness, the by-products of doing too much, too soon.

Exercising regularly is far more important than achieving big increases in the amount of weight that is lifted. For most of the golf exercises, increases should be undertaken in small increments. There also is a point where increases in weight should stop. That is whenever the weight causes the performer to lose good technique or the workout load produces pain or undue fatigue.

It is estimated that 40-50% of the players on Tour use weight training for physical development. A moderate, safe strength training program for all ages is included in *30 Exercises for Better Golf.* A more aggressive power-building program is suggested in Appendix 17-A.

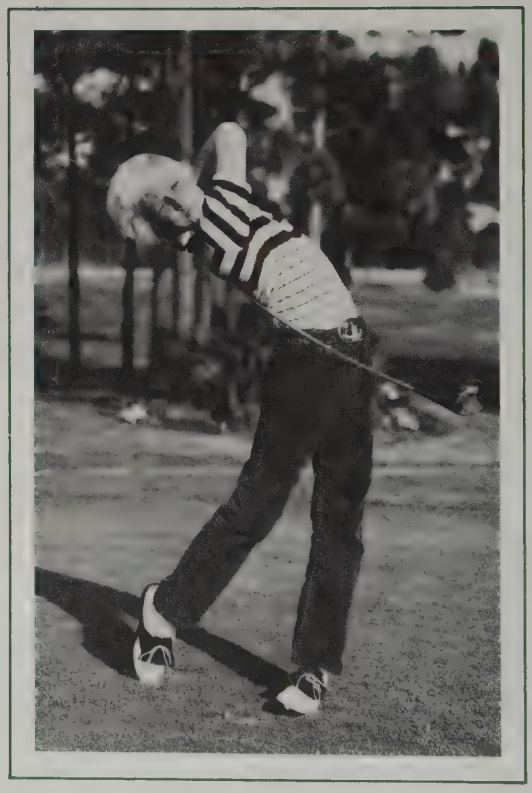
Strength gives the ability to control movement...once you develop your capacity for relaxed power, your movements take on a new quality of effortlessness, improved reflexes and coordination.

Dan Millman

Flexibility

Without question, loss of flexibility, which limits the range of motion, is a more common cause of deterioration in the adult male player's swing than is loss of strength. With age and a deteriorating body, men lose the ability to turn, which shortens their swing, decreases their distance and increases their handicap. Women also lose flexibility as they age, but since lack of strength is generally a greater problem (even in younger women) the lower level of strength still remains their most glaring physical golf problem later in life.

To identify which player can or can't produce great clubhead speed by simply observing that person when they are not in motion is not always so obvious. For example, why can a 12-year-old male weighing 110 lbs. hit a drive 20 yards farther than a 55-year-old male weighing 190 lbs.? (After all, the adult could easily pick the boy up and lift him over his head.) The answer is, because the 12-year-old has better technique. The boy is certainly not as strong, but his flexibility allows him to utilize his body fully. (Illus 17-10) The male adult is overweight, cannot turn far enough to use his big muscles and,



Illus 17-10
Flexibility is certainly more evident in the junior swing.

Photo by John H. Wettermann

therefore, slaps at the ball with his hands, arms, shoulders and upper trunk which weigh about 80 lbs. compared to the boy's 110 lbs. The adult man needs increased flexibility, a program to get him to stretch.

A sensible stretching routine would help not only the adult (male), but many golfers who are unable to make the kind of swing their professional is trying to teach them, because their bodies can't do it. Their minds understand, but their bodies won't respond. *Regularly doing the kinds of flexibility exercises suggested in* Appendix 17-B *or those from Dr. Jobe's book would be the greatest single contribution to a male golfer's longevity.*

Illus 17-11
Father and son, Jack Nicklaus and Jack Nicklaus Jr., walking the course as dad serves as the caddy for a change.
Photo by Stephen Szurlej

Muscular Endurance

Muscular endurance is developed by the repetition of light work loads over an extended period of time. It means that your muscles can keep performing at as high a level late in the round as they did early. If fatigue sets in, the performance level is impaired. Players who make their living playing golf tend to work more on light weights for muscular endurance than very heavy weights for power.

Cardiovascular Endurance

Cardiovascular endurance may be the least important of the three fitness items for golf, yet the most important for life. Nonetheless, if a player consistently loses his sharpness on the back nine, or fades out of contention in the last round of a multi-day event, it may be a sign that he or she is in poor cardiovascular condition. If the golfer doesn't swim laps, jog, take vigorous walks, ride a touring or exercise bike or participate in some activity that regularly strengthens his heart and lungs, then he is probably losing his cardiovascular conditioning. *The activity universally considered by the world's leading medical authorities to be the safest, simplest and most beneficial exercise is walking.* (Illus 17-11)

"I've tried to stay in good condition every day of my life — which is why, at the age of 69 (88 years old at publication), I can still play par golf..."

Gene Sarazen

A Fitness Evangelist

No golfer in history has practiced and preached the message of fitness as enthusiastically as Masters, U.S. Open, PGA and British Open Champion Gary Player. (Illus 17-12) Not only does he recognize the value of exercise, but he also acknowledges the importance of having the desire to do it. Player makes the following observation, "Most people take stock of their physical condition at some point, whether because of something they read, like this, or something they see in the mirror, and resolve to make themselves physically fit. They cut down their cigarette smoking a little, start jogging, and work out a bit at the local gym. This lasts about three weeks. Then suddenly, the cigarette intake is back up again, the television is more important than the jogging, and the gym is 'too crowded.' It doesn't help you to start something and not finish it. You've got to maintain a consistent exercise program over a long period of time in order for it to be beneficial." So finding the key to exercise habit formation becomes even more critical than knowing exactly what to do and how to do it. Ten such keys are listed in Appendix 17-C.

"I don't do the fitness for golf only. I do it for general health. To me, it's one of the most important things in life."

Gary Player

Injuries

The most common debilitating injuries to golfers are those of the wrist, back, hand, shoulders and neck. Though they tend to be more chronic than traumatic, their effect on performance can be devastating. There are several examples of top ten money winners and major tournament champions completely disappearing from contention as a result of a seemingly minor but nagging injury. In one study conducted on PGA Tour players prior to the advent of the fitness trailers, the average loss of time when a player left because of injury was 3 weeks. Of those who came back, 50% were still bothered by the injury.

There are two pieces of advice professionals can give their pupils to help prevent injury. The first is to warm up before they play. The second is to have an exercise program they follow which is conducive to developing strength, flexibility and muscular endurance.

Illus 17-12
Fitness for Gary Player not only helps his physical performance but also strengthens his confidence and mental attitude. Player demonstrates his strength by giving his caddy a boost to see the flag.

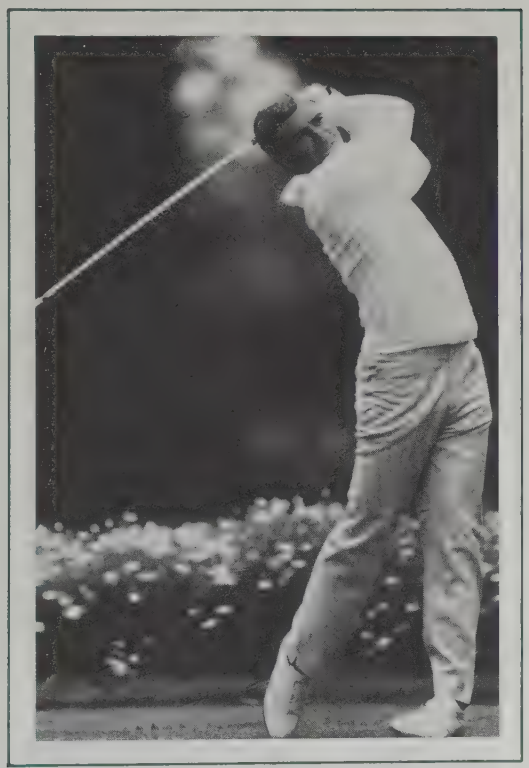
Lower Back Problems

An occupational risk for the frequent golfer is the development of lower back pain. Tour players like Trevino, Zoeller and Archer who have had back surgery can attest to that fact. Others like Snead, Peete, Ballesteros, Boros, Nicklaus, North, Goalby, Player, and a score of others have not needed surgery, but all have needed therapy. Drs. McCarrol and Giol found in a 1982 study that 25% of the Tour players had lower back pain. And that's a fairly young age group.

The most common cause of lower back problems is improper alignment of the spine. It has been estimated that musculoskeletal weakness is the cause of 80% of all backaches today. Weak abdominal muscles allow the stomach to sag, the hips to rotate toward the rear causing an exaggerated curve in the lower back region. This curve puts consistent pressure on the vertebrae and discs. When there is a combination of being overweight, lacking muscle tone, and having poor flexibility and bad posture habits, it increases pressure on the vertebrae. Over the course of time this pressure eventually leads to the problems that send golfers to their doctors.

Contributing to the problems that golfers can have with the lower back is a player's technique. The swing requires twisting of the spine and a forceful release of energy, but some styles are much more stressful than others. Golfers who attempt to wind the upper body 90 degrees or more while holding the lower-body rotation to a minimum will put greater stress on the lumbar spine. Also, a player who drives aggressively toward the target with his lower body while keeping his upper body back in a reverse "C" position will be more prone to lower back injury than a player with a swing in which he finishes more level. (Illus 17-13) A jarring swing into a root, a rock or the turf can also injure the back; therefore, every attempt should be made to take no unnecessary chances when those conditions are present.

One of the best things to do for a healthy back is to stand properly — at all times! Hips should be tucked under and the stomach pulled in. In order to do this one must have strong stomach muscles and flexibility in the hamstring muscles in the back of the legs. Jack Joseph, director of the Fit-Back Exercise Program, makes these observations, "Common treatment for simple backache includes drugs (muscle relaxers and pain killers), manipulation, ultrasound, bed rest, and perhaps traction. All that is usually needed is to reverse the degenerative processes which are causing the shortened, inflexible, and weak muscles of the abdomen, spine, and hips. The ideal way to do this is by beginning a regular regimen of exercise especially designed to improve muscular fitness." Correct exercise almost always helps, but when the exercise stops, the problems usually return. A lower back exercise program which golfers can use to improve muscular strength and flexibility is offered in Appendix 17-D.

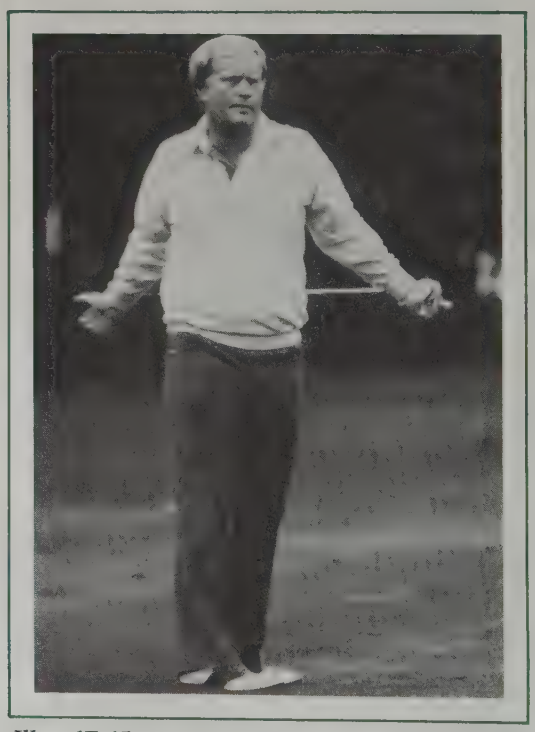


Illus 17-13
A more vertical finish, such as that of two-time U.S. Open champion Curtis Strange, puts less strain on the lower back.
Photo by Stephen Szurlej

All golfers who wish to protect their backs should be made aware of these cautions:

1. When lifting any object let the legs do the work, not the back.
2. Don't lift heavy objects (like golf bags) from the car trunk. (Illus 17-14)
3. Don't reach over furniture to open and close windows.
4. At work or home, try to sit in a straight chair with a firm back.
5. Any time you can, sit so that your knees are higher than your hips. Adjust your car seat that way if possible.
6. Never sit or ride for prolonged periods of time, like at your desk, on airline flights or in a car; get up and move around.
7. Don't stand in the same position for a prolonged period or stay bent over, such as when practicing putting. If you can't relocate, at least shift from one foot to another, or stand up and stretch, or walk around.
8. In bed, if lying on your back, its helpful to have pillows under your knees. If on your side, draw one or both knees up toward the chin.
9. Before you hit your first tee shot, be sure you have warmed up by hitting balls, working up gradually from short irons to full shots. If that's not possible, then do stretching exercises (calisthenics) before making your first full swing. (Illus 17-15)
10. Keep a sweater or jacket in your bag in the event you are sweating, and the weather starts to chill.
11. When doing strength exercises like swinging a heavy club, add "contras," or swings in the opposite direction to your workout. This will provide muscular balance for both strength and flexibility. Balance keeps your body, vertebrae, and other bones in correct alignment.
12. Walk whenever you can; it's great medicine for the back.

Illus 17-14
One of the most frequent causes of lower back injury is lifting a heavy object from the wrong postural position, like golf clubs from the trunk of a car.



Illus 17-15
A warm-up routine can help players prevent injury as Jack Nicklaus demonstrates.
Photo by Stephen Szurlej

Nutrition

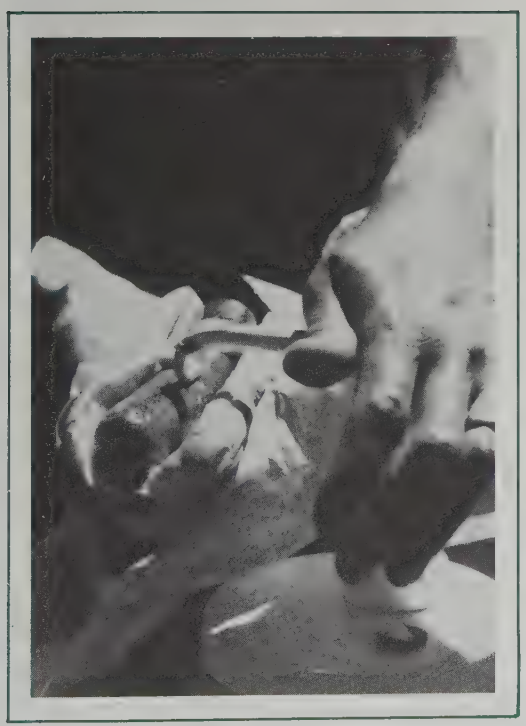
Although we seldom consider diet when thinking of golf performance, it can have an effect. Let's start by making a simple observation. Most halfway house food at golf courses is neither nutritious nor good for golf. A cola and a hot dog may fill the stomach, but beyond appetite cessation neither the short-term nor long-term effects are beneficial. (Illus 17-16) For the short term, the sugar gives a quick high followed by depression around the 15th hole. If it's a diet soda instead, the sugar rollercoaster may not be experienced, but the caffeine has the potential for making a person less calm with the possibility of a slight tremor. If you do select soda for your drink, choose diet, caffeine-free. The hot dog, nitrates and all, is just plain bad nutrition. Both are hollow foods, full of additives, high in calories and fat, low in nutritional benefit requiring the body to desire still more food to handle its needs.

One doesn't have to go to the halfway house, baseball park or circus to find nutritionally bad food. A person can shop at any supermarket and by choice, end up with items that are bad for health and, therefore, bad for golf.

Being overweight presents a performance problem. In a country where almost 50% of the people are overweight, it's far too common to see people hindered in their performance by fat. The truth is, fat people seldom win in competitive golf. In 1987 only one player who won on the men's PGA Tour weighed over 200 lbs. That was 6′4″ Andy Bean, and he certainly wouldn't be considered fat. Thirty-eight Tour events were won by players weighing 180 pounds or less. Fat is detrimental to the performance of almost any athlete. In golf, being overweight robs energy and hinders motion. Of course, there are a few exceptions but they are fighting *heavy odds.* Obesity is a problem with health consequences which can be as serious as those associated with smoking. Also, 10 lbs. of extra fat around one's stomach adds approximately 100 lbs. of extra pressure on the back.

So, to be at one's best, do what is prescribed in any of a dozen magazine articles every month:

1. Consume fewer fats — fatty meat, cream, butter, etc. Choose more lean meat, chicken and fish.
2. Try to eliminate processed foods heavy in additives. Include more fresh vegetables and fruits.
3. Stay away from sugared beverages. If alcohol is consumed, keep it lighter and in small quantities. Drink plenty of water.
4. Ingest low amounts of heavily sugared and salted foods. Choose seasonings that are healthful. For example, substitute fresh lemon juice for salt.
5. Get carbohydrates from whole grain breads, bran, pasta, cereals. The sweet carbohydrate is the calorie loader.



Illus 17-16
The hot dog may be appealing but it's not nutritionally healthy food.

What should the golfer do between the 9th green and the 10th tee, when the halfway house beckons? (Illus 17-17) Choose water, juice or a sports drink to quench thirst. And either buy or bring from home, fresh fruit, packaged fruit or vegetable snacks. (f 17-1, f 17-2) There is no rule that one has to indulge oneself at the halfway house at all. Some competitors have found that they perform better if they eat nothing in the middle of the round. But the decision would depend largely on the individual's tolerance to blood sugar depletion.

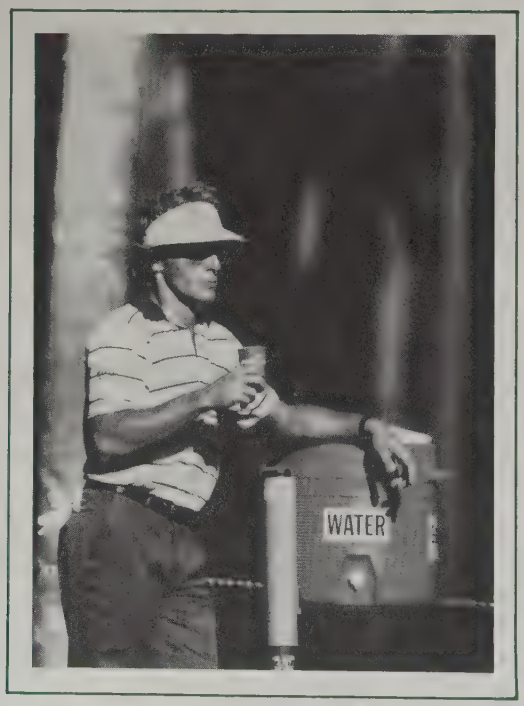
Is It Worth It?

Life is a series of choices. By choosing to exercise, to watch the diet and to enjoy a sensible lifestyle, we will most certainly enhance and prolong our chances to play our best golf. The benefits have proven to be:

Confidence — Feel good about yourself
Longevity — Extend your playing years
Stamina — Have more cardiovascular and muscular endurance
Physical Soundness — Prevent injuries
Distance — Hit the ball farther
Direction — Have more control of the club

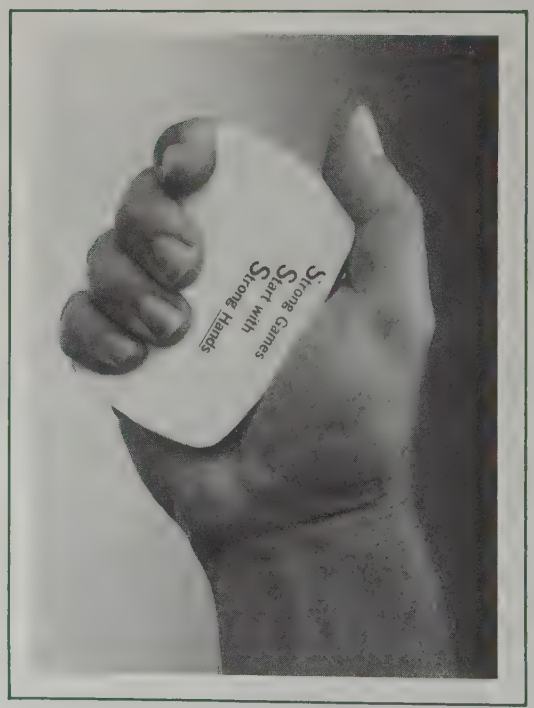
f 17-1 *On the LPGA Tour Nancy Lopez, Pat Bradley, Sally Little, and Patty Sheehan, to name but a few, take snacks of apples, sandwiches, cookies, etc., to fight low blood sugar. Several top Senior Tour players do likewise.*

f 17-2 *Golf course managers should offer selections at halfway houses and snack bars which are more healthful.*



Illus 17-17
While sports drinks do contain sweeteners, they are better for one's health than highly sugared sodas. Water is still the best as Master's champion Bernard Langer demonstrates.

Photo by Stephen Szurlej



Illus 17-18
A grip squeezer, especially when used with the left hand, is still one of the best exercises for maintaining control of the golf club.

Priorities

If it's strictly golf improvement the student is after and his or her time is limited, consider the following activities. They are listed in order of priority toward the contribution to golf improvement for most people. All of them contain some degree of exercise.

1. Take instruction and hit balls on the range to improve technique.
2. Play golf.
3. Practice swinging the club — do drills — visualize and feel the swing.
4. Perform exercises related to golf strength and flexibility: progressive resistance with weights, floor exercises and calisthenics, machines or devices such as Nautilus™, Distance Builder™, Gym-in-a-Bag™, Grip Squeezer, etc. (Illus 17-18)
5. Jog, bicycle, swim, or do built-in exercises for cardiovascular endurance. (Illus 17-19)

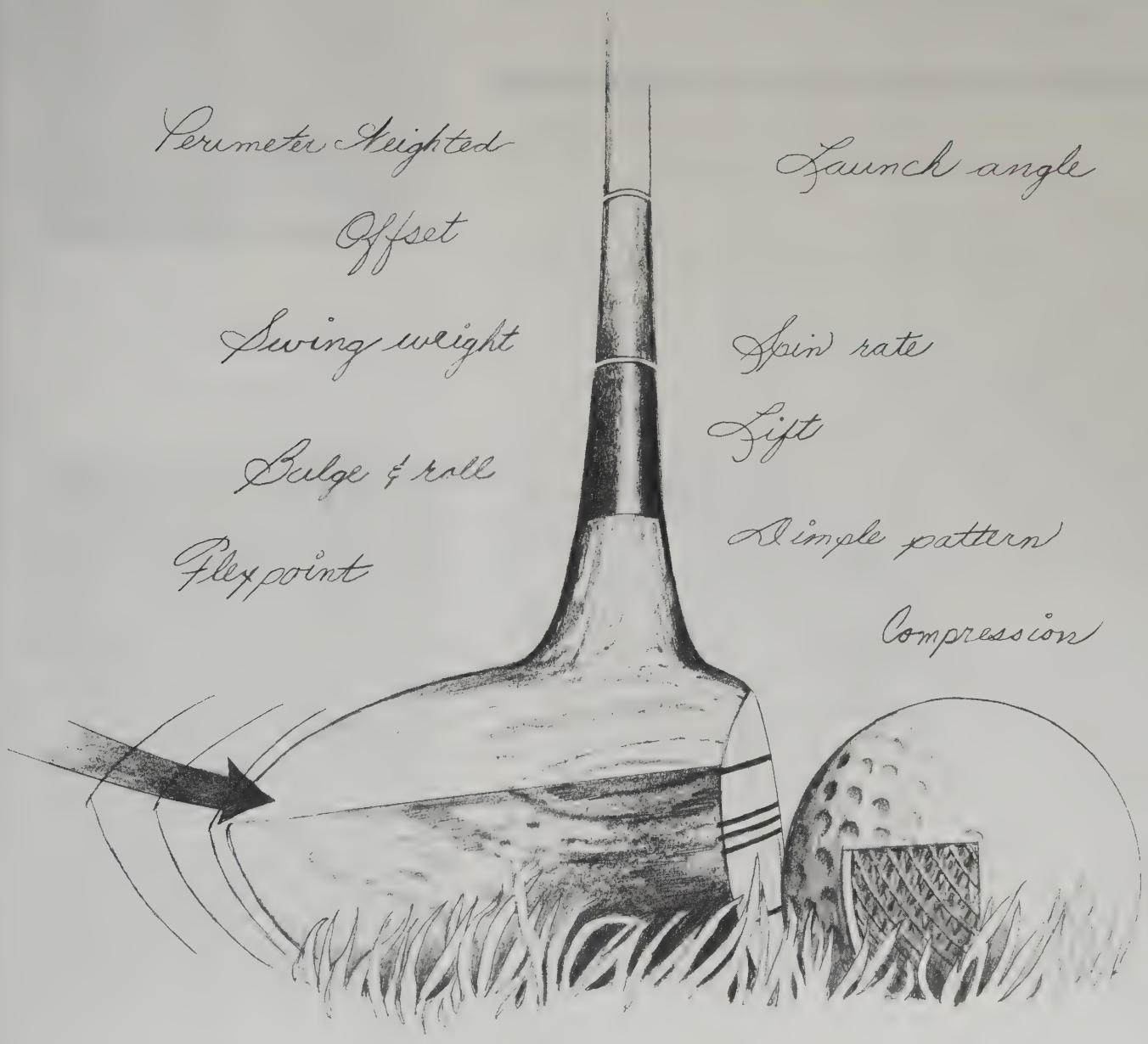
If the pupil is in poor physical condition, instruction, hitting balls and playing may be of little help. It's like trying to enjoy skating when one doesn't have enough strength in the ankles and legs to stand up. It can't easily be done. The teacher may need to counsel the students to go to work on their bodies if they again want to perform well at the game they love, golf.

Illus 17-19
This golfer gets his exercise on the way to the course as well as on it.
Photo Courtesy of Svensk Golf

CHAPTER 18

Equipment:

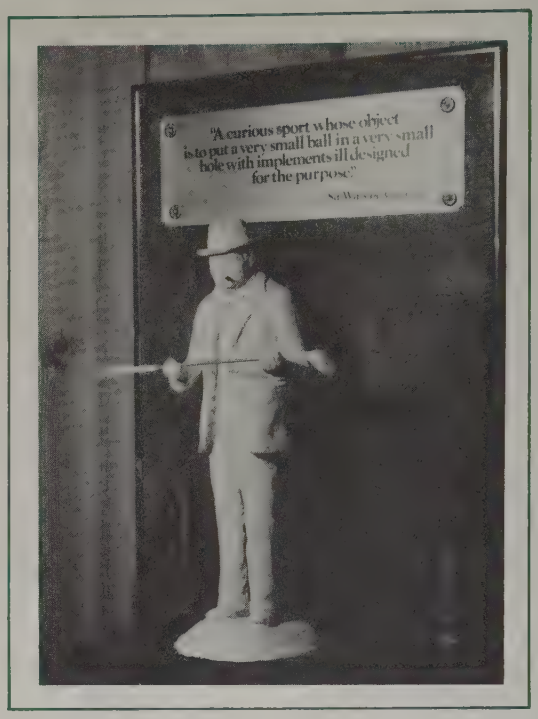
Its Role In Performance



CHAPTER 18

Equipment:
Its Role In Performance

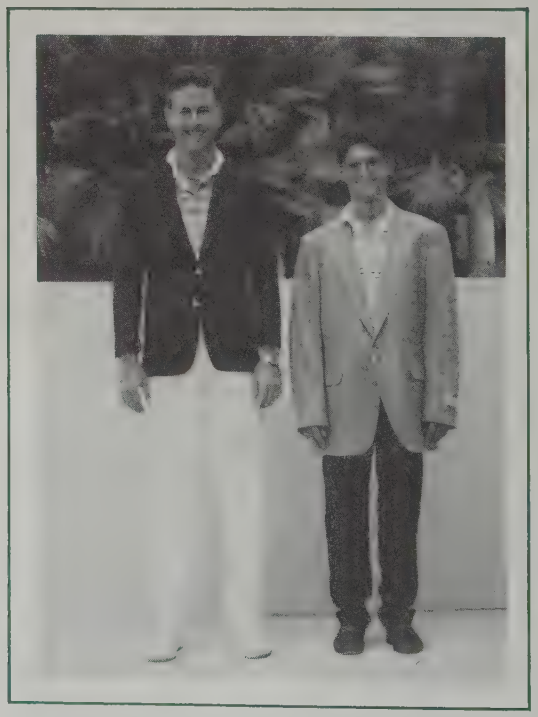
The professional's job in teaching is to help his students play to the best of their ability. How much does proper equipment affect that result? Do clubs make a difference? Can a golfer improve his ball striking by altering his clubs or changing makes or models? What about the player's selection of the brand of ball? Are there really some types of balls that are better for certain players than others? The answer to all the questions is decidedly yes, equipment can make a difference and is a topic about which golfers have many questions. While equipment alone cannot make a strong player it is important that the fitting of the equipment be made to the player, rather than the other way around. (Illus 18-1) The professional is thus provided with another educational challenge — to teach his players about the effect of equipment on performance.



Illus 18-1
Sir Winston's remark on this plaque would not be appropriate in today's world of hi-tech golf.
Courtesy PGA World Golf Hall of Fame

Club Fitting —
A Preliminary Demonstration

The professional might consider offering a clinic or seminar on club and ball characteristics and why club fitting and ball selection is important. A convincing opening visual demonstration on club fitting, which can also be humorous, is to have two gentlemen come from the audience, one a size 46 long jacket and the other a 40 short. Have them exchange and put on each other's jacket. (Illus 18-2) Or, another method would be to bring two extreme jacket sizes from the shop (very small and very large) and try them on two regular-sized volunteers. The result will get its share of laughs from the audience and will also clearly make a point. When one goes in to buy clothes, or gloves, or shoes he wouldn't think of buying the wrong size and trying to make them fit. It is the same with golf clubs. A person should have clubs that fit. Why? Because poorly fitted clubs can make golf improvement more difficult.



Illus 18-2
A person would certainly not buy clothes that didn't fit, nor should one buy golf clubs that don't fit.

Club Fitting — First A Decision

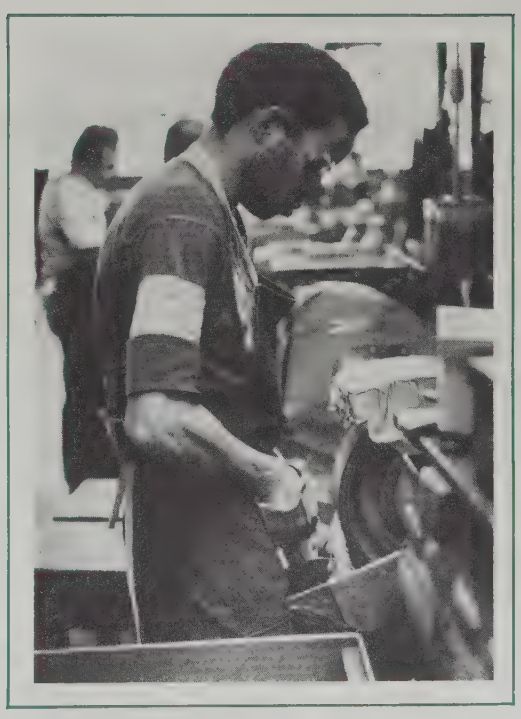
"Hickory golf was a game of manipulation and inspiration; steel golf is a game of precision and calculation."

Pete Dobereiner

Part of the educational process on fitting is to let your players know the options. Option 1) In many cases a stock club, off the shelf, selected properly, can fit. Sometimes with, sometimes without, minor alterations. Option 2) The professional can order custom clubs from the manufacturer after assessing his player's needs. (Illus 18-3, 18-4) Option 3) The professional who has creditable club fitting skills can buy component parts which he or his staff will assemble after a fitting session with the customer. Option 4) The professional can make custom clubs from raw materials, a choice which requires extensive experience and equipment.

In any case, the professional's reputation and service will be enhanced if he is at least prepared to handle adjusting grip size, loft and lie, clubface angle, swing weight, overall weight and length. Much of the decision as to which way to go rests on his interest, skills, market, available time and desires of his customers. The public will generally ask for those clubs they have seen advertised, written about or being talked up by other players.

Illus 18-3
Almost all club manufacturers have custom fitting departments such as the one shown at Tommy Armour Company where a grip is being applied.
Photo courtesy of Tommy Armour Company



Illus 18-4
And a custom grind on a forged iron.
Photo courtesy of Tommy Armour Company

Three Important Elements

Quality, design and *fit* is the major message when considering whether a certain club will improve or hinder a player's performance. Of these, fit is the one where the professional can provide the most assistance to his customers. Fortunately for the professional, the PGA of America has provided its members with a complete golf club fitting plan called *The Fitting Program,* written by Ralph Maltby. (Illus 18-5) That program is based upon eleven variables:

1.	Clubhead design	6.	Swingweight & total weight
2.	Club loft	7 & 8.	Grip size & material
3.	Club lie	9 & 10.	Shaft flex, material and pattern
4.	Club length		
5.	Face angle for woods	11.	Set makeup

The Fitting Program reference manual is available to PGA members and apprentices though the PGA Bookstore in Florida. (f 18-1) Since the material in the manual is extensive, the discussion on club fitting here will be cursory.

Illus 18-5
The PGA Club Fitting Program developed by Ralph Maltby is geared to help the professional and the student find the "right set" of clubs.

Recommendations

The manual recommends you do the following to provide a complete fit: 1) Interview the golfer to get information on their ball-striking tendencies, physical problems, frequency of play; 2) evaluate the player's present clubs and see if you can match the problem to the equipment; 3) watch the player hit balls; 4) make the fitting recommendations.

Golf Shafts

The golf shaft is not a producer of power. It can store energy and, if properly matched to the user, deliver the energy at the correct time. Thus, describing it as the timing device in the swing is most appropriate. It is undoubtedly one of the major considerations in fitting.

The consumer is certainly in need of good counsel when considering the best shaft for his game. In addition to the three currently most popular materials of steel, graphite and titanium, there are other exotic or unusual shafts on the market, all which promise superior performance in their advertising. Steel can offer several choices in weight alone: light weight, extra light, super light, etc. Graphite can have an infinite variety of designs, quality, variety of features and construction so that *one graphite is most certainly not like the next.* Once the material is selected, the characteristics of stiffness, flex point, weight, length and torque need to be addressed. The *PGA Fitting Manual* deals in-depth with those characteristics, so for now we will simply address the two major materials, steel and graphite.

f 18-1 PGA Bookstore
PGA of America
100 Avenue of the Champions
Palm Beach Gardens, FL 33410-9601

Steel and Graphite

A steel shaft was introduced and played as far back as 1891 but it captured little interest. The USGA did not legalize steel shafts until 1924. The R & A delayed approval until 1931. Tempered steel has dominated the market since, despite brief incursions by other materials such as aluminum, fiberglass or stainless steel. Today, the most serious contender to steel is graphite. The flex characteristics of steel are controlled primarily by wall thickness. The thicker the shaft, the stiffer and heavier, it will be and the less torque it will have. Graphite stiffness, flex point and torque are controlled by: 1) the fiber's tensile strength, 2) the amount of fiber, and 3) the pattern in which the fibers are applied. Early graphite had a low torque resistance which caused a serious control problem for the strong hitter. This has largely been eliminated today because fibers are layered in different directions to create whatever amount of torque and stiffness is desired in that particular part of the shaft. (Illus 18-6) Although graphite shaft prices are coming down, some graphite shafts can cost the manufacturer more than five times that of steel. This is reflected in the price to the professional and his customers. Graphite is generally lighter than steel although the lightness of some graphite can be matched by the super-light steel shafts. So although graphite has some potentially attractive advantages, the two look to be formidable adversaries for some time to come. (f 18-2)

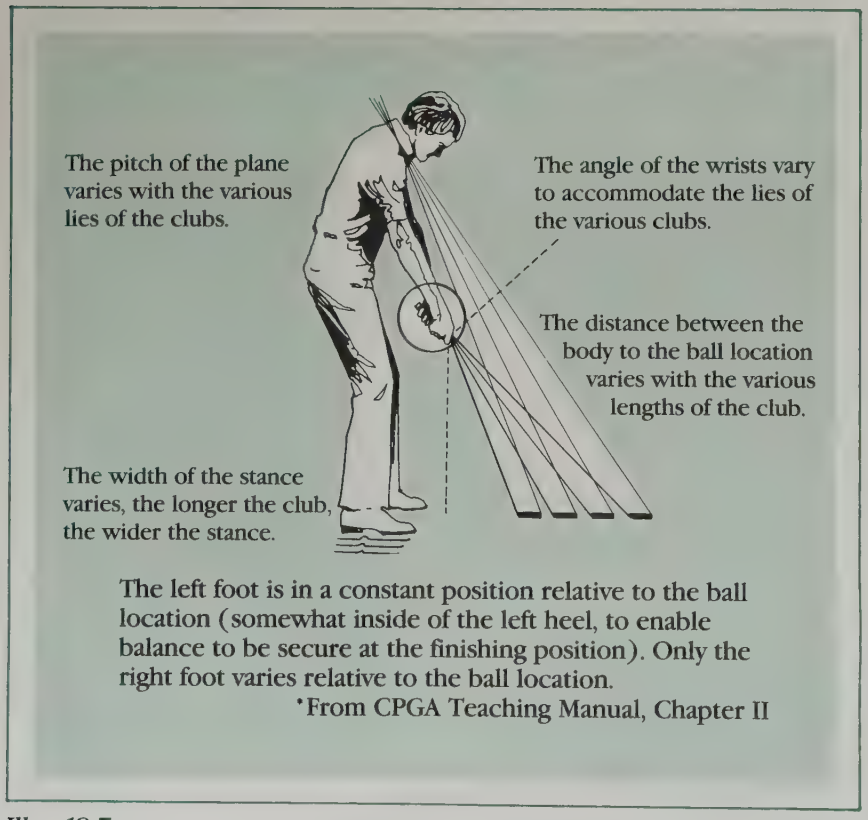
f 18-2 ***While discussing graphite it is worth mentioning that clubheads made of this material also have the advantages of perimeter weighting, head size adaptability and feel that is more like wood. Still, graphite has yet to demonstrate any widespread popularity over persimmon or steel as a clubhead material.***

Illus 18-6
Shafts and other club and ball characteristics tested by companies like Tommy Armour.
Photo courtesy of Tommy Armour Company

The Fitting Process — A Decision

Fitting a customer in clubs is time consuming. The professional should charge for a fitting session if the student is provided with written data and a recommendation. The charge should be commensurate with the amount of time spent and services provided. If the student buys a set of clubs from the professional, the fitting charge or a percentage of it can be waived or reduced. (Illus 18-7)

One of the most difficult tasks the professional faces is to decide whether he should attempt to change the pupil's swing or build a correction into the club. If the professional is heavily engaged in teaching he'll probably lean toward a swing change. If he's more merchandiser or clubfitter than teacher, the decision may be to select forgiving equipment. The best solution is to do both, work on swing improvement while also providing equipment that makes the learning experience as easy for the student as possible. Part of being trained in any profession is developing the ability to make valid decisions. The professional will frequently have to make equipment assessments for his students, taking into consideration their age, strength, flexibility, frequency of practice and play, desire, and golfing goals. The customer will value the advice, so be prepared. (For one list of standard club specs see Appendix 18-A.)

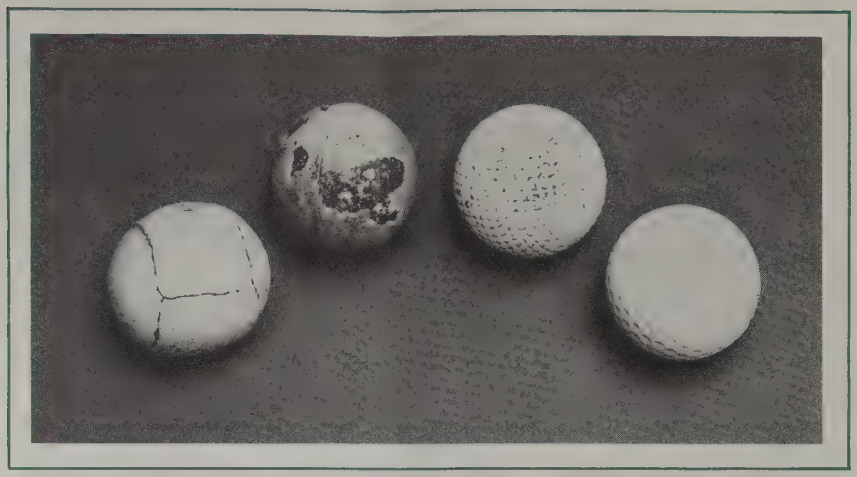

The pitch of the plane varies with the various lies of the clubs.
The angle of the wrists vary to accommodate the lies of the various clubs.
The distance between the body to the ball location varies with the various lengths of the club.
The width of the stance varies, the longer the club, the wider the stance.
The left foot is in a constant position relative to the ball location (somewhat inside of the left heel, to enable balance to be secure at the finishing position). Only the right foot varies relative to the ball location.
*From CPGA Teaching Manual, Chapter II

Illus 18-7
The student should understand the influence of equipment on the set-up and swing as are indicated in this illustration.

Golf Balls

In the opening chapter, the evolution of the golf ball was described. (Illus 18-8) Golfers may not be interested in the ball's history, but they are curious about the best ball for their game. There are several points to consider. The professional is the logical source for such information.

f 18-3 The USGA's list is published three times a year.

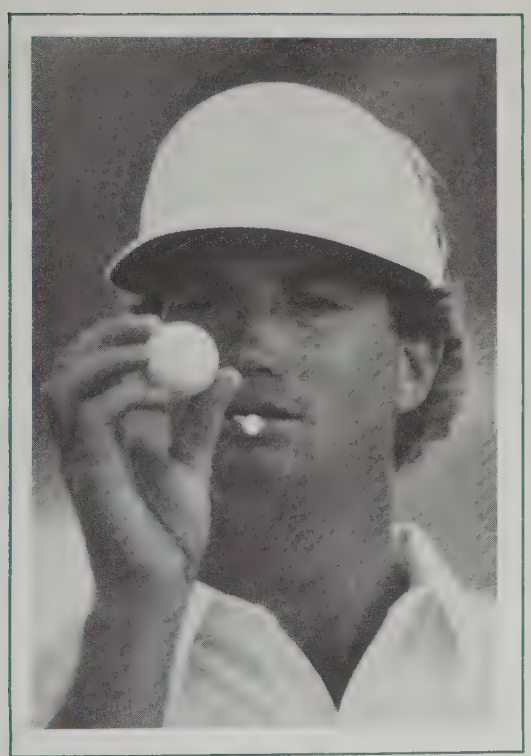


Illus 18-8
The ball's evolution: Featherie, smooth gutty, molded gutty and modern wound (Haskell).

Ball Distance

The majority of advertising dollars spent on golf ball sales since 1900 has been devoted to convincing the buyer that the advertised ball would go farther than its competition. This clearly demonstrates the collective judgement of the industry, *that the large majority of golfers seek distance above all else in their selection of a golf ball.*

The distance a ball will travel (assuming a given projected velocity launch angle and spin rate) is affected by dimple design, material of cover and core, size and weight. All balls, to be legal for events played under USGA and R&A rules, must pass a test on initial velocity, size, weight, symmetry of design pattern and an overall distance standard (ODS). (Illus 18-9) When the ball meets these standards it is placed on a list of "conforming balls." (f 18-3) Those not on the list are considered illegal. Control of the ball's distance is essential to maintaining the *essence* of the game. *Nothing would destroy the game of golf faster than to encourage the use of golf balls that travel appreciably farther.* If that were to happen, present length courses would no longer offer the same challenge. Having to again lengthen courses because of a longer ball would: 1) extend the time of play, 2) require more land for facilities, and 3) cost more dollars in maintenance, all of which are problems even with the present length.



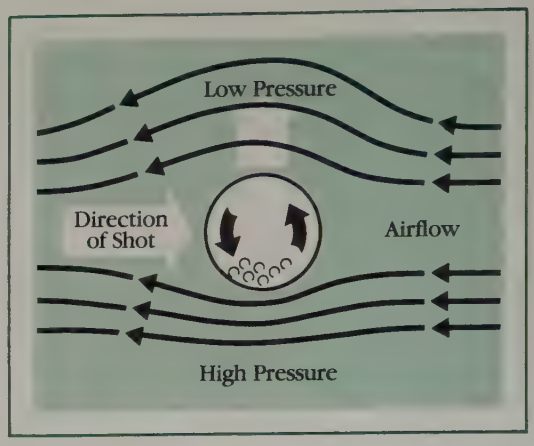
Illus 18-9
Peter Jacobson, PGA Tour player, checks the dimple pattern which will influence the ball's aerodynamics.

Which Ball Really Goes The Farthest?

Your customer may question you on how three different manufacturers can all claim to have the longest ball. The answer is that each manufacturer designs the test conditions to maximize the performance of its product. The manufacturer chooses to test with a certain club or combination of clubs, launch the ball at a given trajectory, and hit at a set velocity. It's not false advertising, but it can be interpreted in different ways.

Of the top 20% of balls tested by the U.S.G.A., the difference in distance from first to last was approximately 10 yards. In other words, when comparing *the best balls* on the market, there is not much difference.

Your golfers may ask you about "super balls" — ones they read about in ads that make claims for "400 yard shots," or "50 extra yards guaranteed." Such a ball, of course, if it existed, would be illegal and not in the spirit of the game. But more to the point, in tests on driving machines, those kinds of balls, if of the same size and weight of a normal ball, go no farther than any your customer can buy in the shop. Reputable ball-manufacturing companies spend millions of dollars on research to make a legal optimum ball. No "hype-oriented marketeer" without even a research department is going to put out a better product. They may make a ball smaller or have a nonconforming weight to make up for their ball's composition, but such a ball would certainly not be superior to any major brand.



Illus 18-10
Backspin produces lower pressure above the ball causing it to rise.

Aerodynamics and Dimples

As was mentioned in Chapter One, the original smooth gutta-percha ball did not fly well until it became nicked. The nicking reduced drag and caused lift by pulling air around the ball, thinning it (lowering the pressure) above and thickening it (increasing the pressure) below. The net pressure difference causes the lift. It is known as the Bernouli Principle. Random patterns of marking developed over the years with little understanding of their influence on the ball's flight. The bramble was the most popular pattern until William Taylor in 1908 came up with the idea of reversing the marking and making concave rather than convex marks — dimples not pimples. Dimples or some form of mesh pattern have been used ever since. (f 18-4)

f 18-4 Interestingly enough there is a raised or bramble pattern back on the market today but not on a regulation ball. The MacGregor "50," a ball originally called the "Cayman Ball," travels roughly 50% the distance of a normal ball and is used in American Modified Golf Association *events and on short courses built for this version of the game.*

Modern Patterns

The standard pattern accepted by the industry until the 1970s was the Atti pattern, one which presented circular rows and columns of dimples, an octahedral array. A new arrangement, the icosahedron, was then introduced which grouped the dimples into triangular regions with the advantage of presenting the same dimple pattern to

the air no matter which direction the ball was spinning. Since then, other pattern designs such as the tetraicosahadral, deltahedral, and dodecahedral have appeared, claiming improved flight characteristics. These terms simply describe the arrangement of dimples in triangular and pentagonal patterns on the surface of the ball.

Even more popular than the patterning in ball design has been the number of dimples and their shape. Until the 1980s the standard dimple count on a ball was from 324 to 332. With the introduction of a 384-dimple ball in 1983 by Acushnet, the dimple count has become a race of "one-upmanship," with one ball even boasting 500-plus dimples. More, however, does not necessarily mean better. More dimples puts the dimples closer together, which some claim gives the ball a slightly softer feel. It may also cause a higher trajectory which for some types of ball construction would be better, for others, worse.

Depth and shape of dimples coupled with their arrangement has given the aerodynamic scientists the greatest opportunity to demonstrate a contribution to golf. Small and deep dimples tend to make the ball go lower, wider and shallower dimples, higher. Balls which normally would travel higher, such as a three-piece balata-covered ball, may be designed with a smaller or deeper dimple to lower that height. (f 18-5) Conversely, a two-piece ball may come with a wide, shallow dimple to help it carry farther.

f 18-5 If asked, "What is a truncated dimple?"
It is one that's flattened on the bottom.

Ball Construction

Three types of golf balls are sold today: three, two and one-piece. The three-piece ball has for its first piece a small rubber core approximately one inch in diameter. It may be filled either with liquid or be solid. Some 30 yards of rubber thread are then stretched up to ten times their normal length and wound symmetrically around the core. This constitutes the second piece. The third piece is the cover which comes in two halves and is molded under great pressure and heated into a single solid cover, most commonly made of balata or a balata blend.

The two-piece ball is made from a synthetic core of varying size (depending on the manufacturer) around which a cover is placed. This is accomplished either by *injection molding* in which the core is centered in a mold by retractable pins and the material is injected around the core, or by *compression molding* in which two cover "preforms" are molded, then assembled around a core and compressed as in the three-piece ball. In both processes the molding takes place under heat and pressure using a mold made from two halves.

One-piece balls are compression molded and are used primarily for practice ranges. None exist today that are popular for high-level competitive play.

Material — Balata and Surlyn

Balata is the dried green-like substance of the juice from a West Indian or tropical American tree, the "balata," of the sapodilla family. It is related to gutta-percha, the material from which earlier balls were made and used as golf ball cover material since the early 1900s. A shortage of natural balata has resulted in a synthetically produced material which retains the name. In addition, other materials with different names are being substituted for balata. Balata is used primarily on three-piece balls, is softer in feel and cuts more easily than other materials.

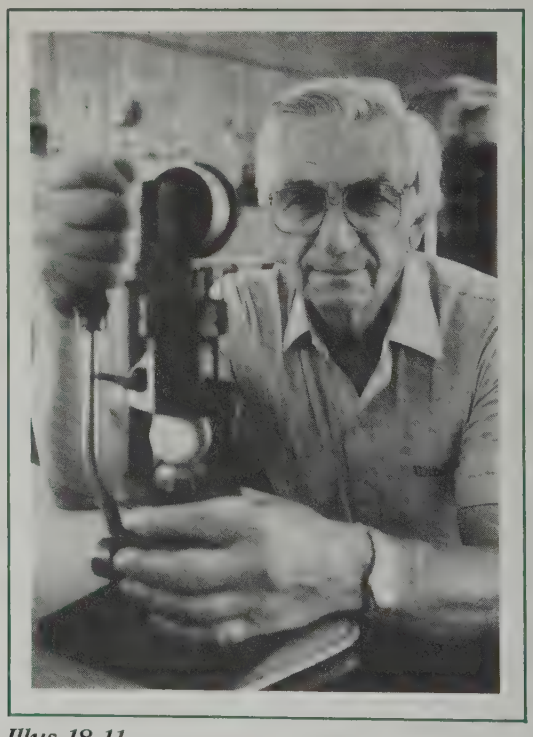
Surlyn® (f 18-6) is the other most popular golf ball cover material. It is used primarily on two-piece balls, but a few brands also have a three-piece ball with a Surlyn cover. Surlyn is more cut-resistant and has a harder feel. Now several other synthetics have been developed which in the future may challenge Surlyn for its popularity. A Surlyn-covered two-piece ball compared to a three-piece balata ball bounces higher when dropped on a hard surface, putts farther with equal effort, travels at a lower trajectory when struck and rolls farther when it hits the ground. Its distance, when compared to a three-piece balata ball, is influenced by several conditions. Hard fairways would favor the lower trajectory, faster running, two-piece Surlyn ball as would a headwind or crosswind. The two-piece Surlyn ball bores lower in the air and slices or hooks less, since it does not spin as readily. The three-piece balata ball has a greater spin rate, therefore, has more backspin to hold the greens and a higher trajectory for downwind play. (f 18-7, f 18-8) Another consideration is temperature. In cold weather the two-piece loses less of its distance-producing properties than the three-piece ball.

Balls are colored (white included) in three ways: 1) painting after construction, 2) by impregnating the raw material with color before molding or, 3) combining the two methods. Clear urethane paint is added to the finished ball. Non-white golf balls account for approximately 15% of the market at this time, although when first introduced climbed to a market share of around 35%.

f 18-6 *Surlyn® is a registered trade name of the DuPont Company.*

f 18-7 *Balata is used as the cover stock on a few two-piece balls.*

f 18-8 *It is possible to make a Surlyn-covered two-piece ball which has a higher spin rate and higher trajectory than a balata-covered three-piece ball.*



Illus 18-11
Testing a ball's compression is Wilson's director of research Tom Hardman.
Courtesy Golf Digest

What is Compression?

Compression is the relative hardness of a golf ball. Technically, it is the amount of deflection of a ball when a standard force is applied. The scale runs from 0 — 200. A ball that does not compress at all from that standard force would rate 200. For every 1,000th of an inch of deflection the rating is reduced by one from the original 200 figure. Therefore a ball that has deflected 100/1,000 ths. or (1/10th of an inch) would be a 100-compression ball. Most balls are made to average 90-compression. Those that exceed 95 are labeled 100 and those that fall below 86 are labeled 80. (f 18-9)

f 18-9 Compression ratings below 86 relegate the ball primarily to the golf range, "x-outs" or low-end private label balls.

The compression range of 80-100 of the same brand and type of ball does have some but not a significant influence on how far the ball will travel. Feel is the primary difference. The higher-rated ball (100) feels harder and is favored more by the stronger hitter. A fair share of PGA Tour players also use 90 compression. Ball makers run compression checks on their three-piece balls and a few also do so on their two-piece balls. (Illus 18-11) Several manufacturers don't run a compression test on any of their two-piece products, saying the proper material is the important factor, not the compression.

Durability

Without question, the higher handicap player should be using a Surlyn® or similar substance covered two-piece ball. These balls are virtually impossible to cut with a golf club. The balls also have a longer shelf life and stand a chance to last longer than a three-piece ball even from centerface hits, because there is no core to go "out of round." (For more information on golf balls see Appendix 18-B.)

Conclusion

Balls and clubs do make a difference, in feel, in performance and in aesthetics which affect performance. (Illus 18-12) Helping the player find that right combination is one of the professional's jobs.

Illus 18-12
To better appreciate the evolution of equipment a player might visit a golf museum such as the PGA World Golf Hall of Fame.
Courtesy PGA World Golf Hall of Fame

CHAPTER 19

The Psychology Of Playing

& Course Management

CHAPTER 19

The Psychology Of Playing & Course Management

Successful golf requires more than a good swing. One can't overlook the importance of a physically sound body, properly fitted equipment, a solid short game, and the ability to adapt to unusual or special conditions. Yet, considering all of the above, one of the most critical factors in determining golf success is still left unmentioned. *Successful golf requires control of your mind and your emotions — successful golf requires psychological strength.* (Illus 19-1) (Appendix 19-A)

"Hitting a golf ball is an act so precise that there is unlimited room for error. That error begins in the mind and finds expression in the swing."

Lorne Rubenstein

Illus 19-1
Every player's dream, to compete in a major tournament, might become a stiff test of nerves if it ever happened.

Golf is a mental game, but not necessarily an intellectual game. The mental portion grows in importance with the mastery of skills to the point where the top players will claim that 70% to 90% of their result depends on their mental performance. They recognize that perfect thinking doesn't always produce perfect results, but flawed thinking does produce flawed results. Without question, the universally agreed upon secret to successful performance is founded on this statement — *"As a man thinketh so shall he be."* So, whatever one is thinking becomes critical to his results. The philosopher, William James, said at the beginning of the 20th century, "The greatest discovery of my generation is that human beings can alter their lives by altering their attitudes of mind." The basic principle "Whatever one believes with feeling becomes his reality" has been expanded upon and embellished by populist positive thinkers such as Dale Carnegie, Norman Vincent Peale, W. Clement Stone, Earl Nightingale, Maxwell Maltz, Paul Thomas and Dennis Waitley, all of whom have extolled and taught many of the same principles that are applied to golf psychology today. Before investigating these, let's see where we've been to better understand where we are.

"The person I fear most in the last two rounds is myself."

Tom Watson

Reviewing the Literature

"Winners know from experience how they will react to the excitement and pressure of a final-round shootout. They find a way to perform even when their legs and arms go rubbery and their heartbeats make the logos on their shirt jump up and down."
Peter Jacobson

Reference to the mental hazards in golf can be traced to the game's very first instruction book, *The Golfer's Manual,* written by H.B. Farnie in 1857. Farnie observes, *"The great stumbling block in the way of all players, veterans and recruits, is excitement."* (What we would identify today as anxiety or nervous tension.) Farnie goes on to note, *"Indecision should be overcome boldly and promptly by the player."* (Today our approach would be "positive mental imagery.") He continues by saying of the player, *"He must have confidence in himself."* (Our present day "positive self image.") So what's new? What's new is the *HOW TO!* How to not *just recognize, but to overcome* nervous tension, utilize positive mental imagery, concentrate, relax and create a positive self image. That's the message being offered to today's golfers. (Illus 19-2)

Modern-day golf psychology has been slow to evolve and is far more influenced by the literature and research in psychology than the literature and research in golf. Nonetheless, there has evolved a body of literature on the subject directly pertaining to golf. Here's a chronological list which includes most of the golf books in which the primary subject matter has been the psychology or the mental side of golf:

1908 — *The Mystery of Golf* — T.A. Haultain

1922 — *Psychology of Golf* — Leslie Schon

1923 — *The Brain and Golf* — Charles W. Bailey

1925 — *The Professor on the Golf Links* — Charles W. Bailey

1927 — *Mental Handicaps in Golf* — Theodore B. Hyslop

1929 — *The Mental Side of Golf* — Charles W. Moore

1930 — *Solving The Mental Problem of Golf* — Edwin R. Dillon

1939 — *The Mental Side of Golf, A Study of the Game as Practiced by Champions* — Kenneth R. Thompson

1960 — *On Learning Golf* — Percy Boomer

1960 — *Golf is Mental* — Dr. Archie Hovanesian

1961 — *The Winning Touch in Golf* — Peter G. Cranford, Ph.D.

1961 — *How You Can Play Better Golf Using Self-Hypnosis* — Jack Heise

1961 — *It's the Damned Ball* — Ike S. Handy

1962 — *The Education of a Golfer* — Sam Snead

1972 — *Golf in the Kingdom* — Michael Murphy

1976 — *The Missing Links* — David C. Morley, M.D.

Illus 19-2
Facing the posting of a score creates extra tension for most players.

1978 — *The New Golf Mind* — Gary Wiren, Ph.D., and Richard Coop, Ph.D.

1980 — *The Golfing Bodymind* — Sandy Dunlop

1981 — *The Inner Game of Golf* — Timothy Gallwey

1981 — *Mind Mastery for Winning Golf* — Robert Rotella, Ph.D., and Linda K. Bunker, Ph.D.

1984 — *The Golfing Mind* — Vivien Saunders

1986 — *Five Days to Golfing Excellence* — Chuck Hogan

There was not much of practical value here that the average golfer could use to his advantage prior to Peter Crawford's *The Winning Touch* in 1961. Most of his material is still quite useful today. The golfing public in the '60s was almost 100% rooted in the golf range "ball hitting only" mindset for improvement, so despite its usefulness, Cranford's book broke no sales records. Before his book, only a handful of PGA members like club professional Gene O'Brien from Wichita, Kansas, and Ben Hogan on the PGA Tour were really into the psychology of golf. Some professionals like Tommy Armour were natural psychologists in their approach to teaching but didn't expound on it much further. It took a plastic surgeon, Dr. Maxwell Maltz, writing a non-golfing book, *Psychocybernetic's*, and occasional appearances at seminars by sport psychologists such as Dr. Bruce Ogilive and Dr. Tom Tutko, to create enthusiasm among professionals for increased application of psychological principles to playing and teaching. Maltz promoted the importance of a strong self concept by declaring that "your action, feeling and behavior are always consistent with your self-image." If you think you are a poor putter, you'll be one...if you believe you are a choker, you'll choke. Ogilive and Tutko created interest in psychological inventories for athletes, a practice only recently being used for the average golfer.

But the blockbuster book that is still spoken of in reverent tones among golf psychology devotees is *Golf in the Kingdom.* (Illus 19-3) Golf's premier metaphysical book opened the golfer's eyes to a previously unexplored territory, the world of Eastern mysticism, of Zen and Ying and Yang. Murphy's Eastern "nonthinkers" approach is quite different from the Western "positive thinkers." In *Golf in the Kingdom,* the focus is on the experience, not the outcome. By not trying to make things happen, they do, but only because you let them. It's an approach that has greatly influenced the competitive mind in present-day sports. More on that later.

The first to write a regular column in a major golf magazine that dealt exclusively with the mental aspects of the game was Dr. Michael Morley, whose work appeared in *Golf Digest* from 1971-1974. Since then several publications, even regional golf perodicals, carry the columns of psychologists writing on golf. A non-psychologist, Ed Grant, from Scottsdale, Arizona, brought a new

Illus 19-3
Golf's most noted metaphysical book, Golf in the Kingdom.

twist to golf psychology by producing an audiocassette program called "Subconscious Golf." Grant studied standard accepted psychological principles and applied them to golf using examples with which the average player could identify. To those trained in psychology, it may have been "old hat," but to 95% of amateur golfers and an almost equal number of professionals, it was a revelation. For many, it still is.

"The Key to Mastering the pressures and adversities of playing golf is complete and constant imperturbability." (If the player can say this slowly and clearly he will become poised, confident and in command.)
Paul Bertholy

Tim Gallwey, in his book *The Inner Game of Tennis,* captivated multitudes of tennis buffs with his Self 1 and Self 2, nondirective "bounce/hit" approach to improved performance. His thesis that tennis is overanalyzed and that details are over-taught (much to the detriment of the pupil) fell on some receptive golfers' ears. Transferring his thesis from tennis to golf was relatively simple. After all, what sport is more overanalyzed and details over-taught than golf? So the message changed from "bounce/hit" to "back/hit." That message being, distract the conscious mind by keeping it occupied with a seemingly inane task so the subconscious can take over and perform naturally. The task was repeating "bounce/hit" on each tennis stroke and "back/hit" on a golf shot.

The fact that humans have a two-hemisphere brain structure, each side contributing specific functions related to golf performance, was brought to light in the first left-brain/right-brain sports book written, *The New Golf Mind,* by Dr. Gary Wiren and Dr. Richard Coop. It was an awareness book which set forth a variety of options for the performer to explore and practice to better control his performance on the course.

In *Mind Mastery for Winning Golf,* Dr. Robert Rotella and Dr. Linda Bunker provided a pencil and paper motivational assessment test for the reader, programs for goal-setting, and techniques to help players with their attention control and anxiety reduction.

Coop and Rotella are both full-time university professors in their respective fields of psychology. In addition, they serve extensively as part-time speakers, teachers, and consultants on the psychology of golf. (f 19-1) Former PGA member Chuck Hogan, president of Sports Enhancement Associates, may be the only individual presently devoting full-time efforts to the study of golf psychology and making a living at it. Hogan, though not a trained psychologist, has authored *Five Days to Golfing Excellence* and conducts his S.E.A. "visualization" programs around the country. His videotape "Nice Shot" is the only major title in the video medium devoted primarily to psychology other than the Sybervision tapes which utilize "psychological enhancement" along with "modeling" to teach skill technique.

f 19-1 *Coop and Rotella jointly produced a combination audiocassette tape program and workbook,* Golfing Out Of Your Mind, *1985.*

Granted, the first mention of psychology in golf may have been in Farnie's book in 1857, but we are just beginning to get the message.

What, How and How Much?

There is little doubt that today's better players recognize the importance psychology plays in performance. They have experienced the truth in the statement, "The body won't lie for the brain." But, when it comes to *what to do, how to do it* and *how much to do,* the golfer is still seeking input. The following information should help.

If it were all boiled down into the most simple and useful form, it might look something like this. For a player to perform near his best on the golf course, as a minimum, he would need to develop the following mental/psychological skills:

1. The ability to maintain a strong self-image and confidence as a golfer. (Illus 19-4)
2. The ability to concentrate or focus on the task of the moment. (Illus 19-5)
3. The ability to relax and remain mentally and physically composed in stressful situations.
4. The power of creative imagination to produce positive mental pictures and expectations.
5. The desire to be one's best while having the character to maintain perspective and patience. (Illus 19-6)

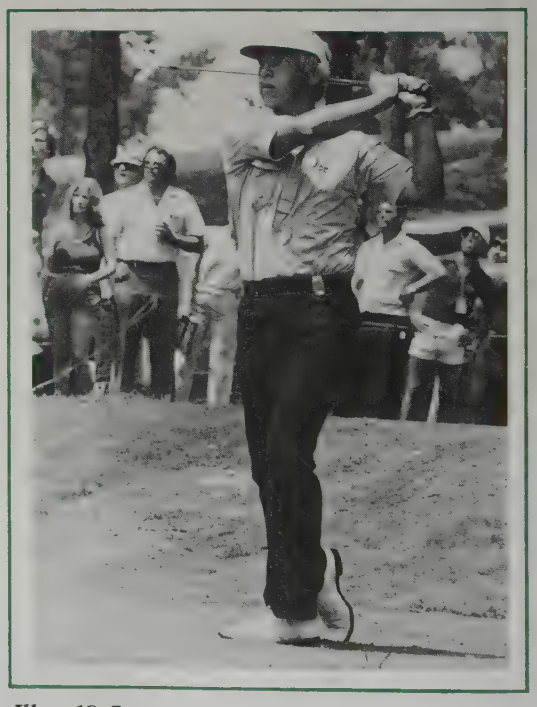
Let's take a closer look at these five skills.

Illus 19-4
Believing in yourself is one of golf's most important psychological skills. U.S. Open champion Curtis Strange can attest to it.

Self-Concept and Confidence

The message that confidence can be developed and self-concept can be changed is the good news. There is no bad news, unless one expects that change can take place without practice.

Golfers perform in a manner consistent with the image or concept they have as a player. One is born without a self-concept; it is developed. Therefore, it can be changed. If, for example, a player feels he just can't play bunker shots, then his self prophecy will be reinforced by his poor performance. But with instruction which gives him a new understanding of bunker principles, with some minor changes in technique and practice, his performance can change dramatically. Experiencing success allows him to alter his self-concept as a bunker player. If the change is strong enough so that he now feels he's a very good bunker player, he probably will be. Among golfers you'll find those who have a split self-concept. Players who think of themselves as a great ball striker most often *are*. If they consider themselves poor putters, they, again, *are*.

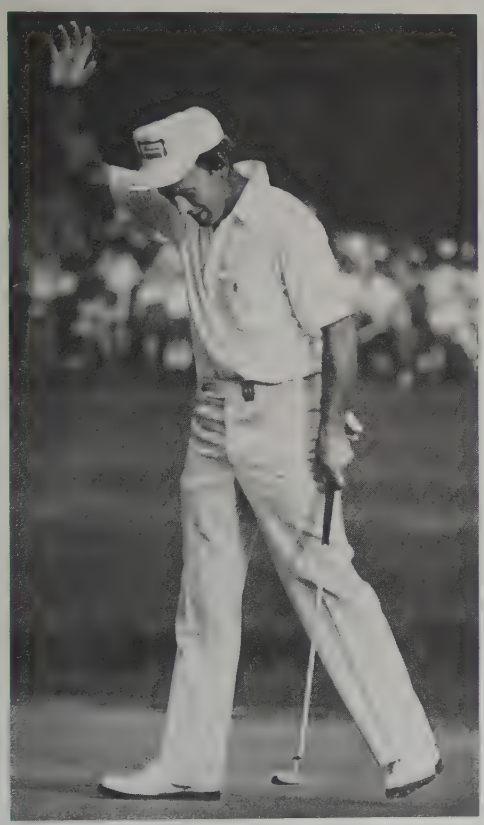


Illus 19-5
PGA professional Dave Glenz stays focused in the present.

Self Talk

"Most golfers prepare for disaster. A good golfer prepares for success."

Bob Toski



Illus 19-6
PGA and U.S. Open champion Larry Nelson is a quiet, humble person, known for his mental toughness and strength of character.
Photo by Lanna Swindler

Imagine a professional playing in a two-day pro-am with three other golfers. It's the 16th hole, a par five; the team is 14 under par, right on the cut-line for the next day's championship flight finals. One more birdie and they'll be in for sure. The professional plays first and hooks it out-of-bounds. No problem; he has three partners and besides, Charlie with his 26 handicap has two strokes on this hole. The two other partners, Henry and Joe, hit poor tee shots, but Charlie rifles his longest of the day right down the middle. Henry and Joe manage to make about every mistake possible on the way to the hole and, by the time they've reached the green, each has a difficult putt in the 10- to 15-foot range for net bogey. Charlie, however, has hit his career fairway wood to a spot just in front of the green. He has a simple 60-foot pitch over the bunker to the middle of the green, two putts, and his par makes net eagle. A pep talk, "C'mon Charlie, we need this one…you can do it," doesn't work, because Charlie chunks it into the bunker. With more words of encouragement from his partners, Charlie is then reminded that all he has to do is to get it out, on the green, two-putt, and the team still earns a birdie. Charlie leaves it in the bunker — and another thereafter. One more of the same and he hurriedly skulls it across the green into the pond on the far side. The team makes double bogey. On the way to the next tee, should the professional react to Charlie's failure by saying, "You choker, you klutz! Every time you have a chance to help the team you blow it! Just a simple pitch, but you always stick the club in the ground and the ball goes nowhere. Why don't you learn to hit that shot? Your technique is terrible!"

Of course, the professional would never say that, but Charlie would — to himself. Golfers do it all the time. Charlie does it all the time. Does this verbal berating help Charlie do better the next time he faces the same situation, the dreaded pitch shot over the bunker? No, it only reinforces the negative image and compounds the fear. Fear produces tension, which kills the chance of succeeding. Negative self talk, those derogatory little conversations that go on in one's head, can destroy a good self-concept. Words trigger pictures, and pictures are the predictors of performance. By expressing negative statements, the player conjures up negative pictures and that is tantamount to failure. Words also affect emotions and attitude. Saying, "I hate this course. I can't play it!" makes the player lose desire. He creates an attitude of wanting more to *get the round over with than play it.*

So, what should the professional do to help his students avoid this harmful practice? First and foremost, he should explain to them the importance of maintaining a positive self-concept and then help them develop it. "Charlie, I know you can hit that shot correctly because I've seen you do it many times while practicing. Actually, you can play that shot quite well. So, next time you are faced with the same situation, visualize that you're back on the practice range hitting one of those good ones. *Then move up to the ball and do it again."*

Professionals should tell their students to be kinder to themselves, not so critical. The greatest players in the world miss shots, but they try to quickly dismiss the result and focus on the last good one with that club they hit and how it felt. Jack Nicklaus displayed this use of "selective memory" when, after giving an instruction clinic, he was asked a question from the group. "How do you cure a shank?"

"I don't know; I never hit one," laughed Nicklaus.

As he turned to handle the next question, his inquisitor persisted, "I saw you hit one." Then, the man from the audience proceeded to identify the year, the course, and the hole. The smile left Jack's face. With an icy stare he turned toward the man and replied, "I don't remember. Next question!" That is selective memory in action: recalling the good while erasing the bad. (f 19-2) The average player uses negative psycho-feedback, dwelling on past mistakes and errors, resurrecting failures and programming them into his computer. In contrast, it is said that the great Walter Hagen *never* recounted past mistakes. A positive memory practice protects one's golf ego. This is critical, because champion performers in any sport must believe they are the best. (Illus 19-7) In Dick Aultman's and Ken Bowden's excellent book, *The Methods of Golf's Masters,* the one common characteristic from Harry Vardon to Sarazen, Jones, Hagen, Nelson, Hogan, Snead, Palmer, Nicklaus, et al, was not the grip, aim, set-up or swing. It wasn't technique at all. *It was the belief that they could beat anybody in the world.*

f 19-2 The player must be realistic and be aware of mistakes made on the course so he can work them out on the practice tee. But he never dwells on previous failures.

f 19-3 Known in psychological terms as an "obiter dicta," a casual aside or "throw-away" comment.

Gaining A Strong Self-Concept

How does a golfer develop a strong self-concept? One way is through performance, by playing well. But, if people always had to wait until they played well to develop this good image, it might never happen. So, the golfer needs to first picture himself as a good player, a good putter, and a good bunker player, which will in turn, with instruction, practice, and continued positive pictures, come true. *Positive affirmation* (saying good things to oneself) will aid this process of enhancing the self-concept. Even though what the player is saying may not be totally true, i.e., "I can chip and pitch the ball as well as anyone in this club," by continuing to repeat the statement, repetition transforms a belief into reality. "Whatever the mind of man can conceive and *believe within reality,* it can do."

The professional can support the efforts of those trying to build their self-concepts by giving them words of praise and encouragement. It is amazing how an offhand comment can make an indelible impression on someone else. While playing in a casual round, the professional on the way to the next tee may say, "I sure like your putting stroke." That comment coming from someone whose opinion that player values can bolster his putting — possibly for life. Don't underestimate the power of casual remarks. (f 19-3)

Illus 19-7
Two giants in the realm of confidence, Sarazen and Hagen. One can almost tell by their look.

Photo by Brown Brothers

Confidence

When golfers feel good about themselves they exude confidence. It's next to impossible to find an outstanding player who isn't confident about his/her ability to play. Some express their confidence openly and may be considered "cocky" or a "hot dog." Others may mask their confidence or hide behind feigned humility — but they still believe strongly in themselves or they couldn't succeed.

A few years back, Tom Watson bunkered his ball on the 17th hole at The Masters on the final day when he was in contention. He went into the bunker and hardly had the cameras picked him up before he played the shot out, close to the hole, subsequently making the putt. When asked later in a press interview why he didn't take more time — wasn't he worried? — he responded, "There were only three things that were going to happen: 1) I could knock it close and make the putt, 2) I could knock it farther away and make the putt, or 3) I could knock it in. So why did I need to worry?" That's confidence.

"...the tournament professional survives by confidence and so must never allow thoughts of his own fallibility to penetrate his consciousness from any source...he has to believe in his prowess because that faith in himself is his greatest asset."

Arnold Palmer

Watson's retort to his caddy at the 17th hole of Pebble Beach in the U.S. Open in 1982 further substantiates this quality. Facing a precarious lie in the rough to a closely cut pin on a lightning fast green, Watson's reply when his caddy encouraged him to get it close was, "Get it close, hell! We're going to make it!" And, of course, he did. That's confidence! (Illus 19-8)

Remind your student that confidence won't produce miracles. One can't stand on a ten-story building and confidently announce, "I can fly; I can fly," then do it. What confidence will do is let the performer do what he/she is capable of doing. It sharpens the focus, energizes the body, and relaxes the proper muscles to enhance performance. Confidence doesn't guarantee a peak performance, but it allows it.

Illus 19-8
Tom Watson showed ultimate concentration at the time in holing this tricky pitch to win the U.S. Open.

Photo by Lawrence Levy

Concentration

Concentration is the ability to sharply focus on the task at hand. The task at hand is playing the next golf shot. The time this takes from the moment the player arrives at the ball until he/she propels it forward is usually somewhere between 20 and 40 seconds. That's the amount of time a player needs to sustain concentration prior to each shot. But try to focus on something — an object, an idea, a mental image — and sustain it for 40 seconds without allowing any distracting thoughts, events or sounds to interfere. It is quite difficult. But it can be learned with practice.

Not all players use the same style of concentrating, just as they don't use the same style for relaxing, visualizing, physical training, or swinging. Ben Hogan is used as the classic example of the "player in a cocoon" style, one who remained in narrow focus for an entire eighteen holes. This is like driving one's car in first gear across the country, a task requiring a great deal of self-discipline. It's not easy. Lee Trevino is the diametric opposite, 35 minutes of concentration and 3 hours and 25 minutes of gab with whomever will listen. It's a different style of concentration, but it's still concentration.

"Letting go is ineffective unless it is preceded by both physical conditioning and mental training. There is no substitute for the hard work and self-discipline that go into athletic training, but without the ability to let go, the discipline invested can actually be counterproductive."

Charles Garfield

Golf requires both broad and narrow focus skills. Broad focus is used to gather information on the wind, terrain, ground firmness, lie, hazards, the opponent, the leader board, the whole picture. Narrow focus is used to shut out all unnecessary thoughts and possible distractions, and to concentrate all thoughts and energies on the task at hand.

Teach your student that before he plays a shot, he must broad focus or analyze the situation, make a decision, then narrow focus by clearly visualizing the shot and swing the club with no additional mental interference. (Illus 19-9) Change to broad focus again in evaluating the result, and then go on to enjoy the surroundings, the people, the day, and the game as he proceeds to the next shot.

Illus 19-9
Clearly picturing (visualizing) the shot definitely helps in producing it.

Going from no focus (socializing) to broad focus (analyzing) to narrow focus (the target) takes discipline. If the player does not make the transition, he may find himself still chitchatting and not notice a wind direction change. Or, he may be ready to start the backswing while he is still thinking about the pot bunker in front of the green. In both cases, his mind is in the wrong place.

Professionals can help their students by suggesting they develop a mental routine prior to each shot to integrate with their normal pre-shot routine. For example: 1) All social conversation stops when the bag arrives at the ball. At that point, the serious analyzing begins, although some general information may have been gathered on the way to the ball. 2) Once the club is selected and in hand, narrow focus begins until all concentration is directed toward

producing the motion in the body that becomes oneness with the target. An example of narrow focus in playing a lofted iron to the green might be to visualize the ball as though it were controlled by a parabolic "rainbow-colored" ray that starts at ground level, arches upward, then down into the cup. And, 3) Once the image is fixed, feel the sensation in the body that it knows to be the perfect response and swing the club with the confidence that what was pictured will now happen. (On all U.S. currency, the statement "In God We Trust" appears. Maybe golf manufacturers should stamp on every club, "In Our Swing We Trust.") All this takes but a short time. Just ask the student to "call a 30-second moratorium" on unrelated activity before a shot.

"When winning became the most important goal, losing took on added importance as well. It was the fear of losing which was responsible for my poor judgement...for overtrying. From this experience I learned for the first time that my will to win was stronger (more effective) if my mind was detached from the consequences."
Timothy Gallwey

Relaxation

The greatest destroyer of the golf swing is tension, more specifically, an *undue amount* of muscular contraction. Some muscular contraction is needed simply to stand up; a good deal more to make a powerful golf swing. But, while the prime movers (the agonists) are creating motion in the body, their partners (the antagonists) must be relaxing. The ability to do this is called "differential relaxation" which is shortened into a favorite frequently heard word in teaching — "Relax."

There are two fundamental ways to relax: *mechanical* and *mental.*

Mechanical —

1. *Every hour or so in your waking day, close your eyes, take a deep breath, and slowly let it out.* While exhaling, let a wave of relaxation wash over your body as the tension drains out of each muscle group. To make this practice a habit, do it with some routine activity: when you answer the phone, each time you sit down, when the clock sounds the hour or when you see the hour has changed.
2. *Tighten your muscles as tightly as possible, then relax and feel the tension run out your fingertips and toes.*
3. *Practice deep breathing when facing a potentially stressful situation on the golf course.* Take two or three slow, deep breaths, and with each exhalation let the body become more calm.

Mental —

1. *Invest in a simple EMG (electromyographical) biofeedback monitoring device to train you in the ability to reduce muscular tension.* In addition, heart rate, peripheral body temperature, EEG brain waves, and blood flow can all be mentally controlled, but the ability to do so is a learned skill requiring mental practice. The electronic monitoring device contains sensitive amplifiers which can detect even the slightest impulse from a muscular contraction. This is converted to an auditory tone or a visual analog or digital readout. This feedback allows the student to recognize increases or decreases in muscular tension. With practice, the student can learn how to decrease tension by controlling his/her thoughts. What a useful skill for golf!

2. For centuries, music has been used to both calm the "savage beast" and to incite the troops to "charge." Researchers have proved that music can keep us awake, put us to sleep, calm us down, or fire us up. But it's not all the same music. Studies show that music with a rhythm of about one beat per second, matching one's natural breathing pattern, is best for relaxing. Touring professional Richard Zokol made history and caused a stir in golf circles when he wore a portable audiocassette player during his rounds in the Milwaukee Open and turned in the best golf of his professional career. Hypertense students should have the opportunity to listen to relaxing music on a portable cassette player to see if it helps them to relax.

3. Progressive relaxation was pioneered by Dr. Edmund Jacobson in the 1930s and is still widely used today. It suggests that you find a quiet place away from any potential noise or distraction and sit in a comfortable chair — a recliner is perfect. Close your eyes, count backwards slowly from 10 to one, and with each descending number let the body go deeper and deeper into a relaxed state. You may wish to use the technique of starting at the top of the head, identifying specific muscle or area one at a time, totally relaxing each group. Work progressively downward until the whole body has been covered. Once in a completely relaxed state, you may wish to suggest positive habit affirmations such as, "I will stroke my putts with a confident, accelerating motion directly to the target." This added element creates a form of self-hypnosis with the habit affirmation including a posthypnotic suggestion. After 10 to 20 minutes in this state, the student can count slowly from one to five and return to a normal state of alertness. (Illus 19-10)

   One of the oversights golfers often make when thinking of relaxation is to think only of muscles when there is just as great a need for the *mind* to be calm. When the mind is in a harried state, the powers of imagery and concentration are severely impaired. By relaxing, the player enhances his ability to visualize. So, calm the mind as well as the muscles.

Illus 19-10
Quieting the mind and relaxing the body can be more important before play than hitting balls.

"The mind's eye is our imagination. In the mind's eye, people 'see' memories of past events, and imagine future situations."
Mike Samuels & Nancy Samuels

"The one influence most likely to assure the satisfactory progression of the swing is clear visualization in the player's mind of the movement."
Bobby Jones

Visualization

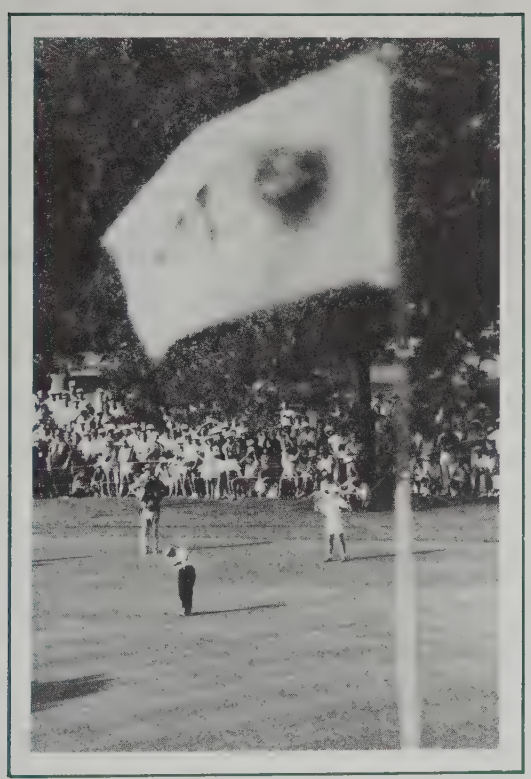
"When I approach the ball I can visualize the shot I want to hit. When I'm taking the club out of the bag I can still see that shot in my mind. When I'm setting up to the ball I see it, and from there it's just a question of going through the movements with my hands, arms and body and what not, to make the shot I see in my mind's eye. If I'm interrupted, when I'm in the process of doing this, I very seldom hit a good shot."
Sam Snead

Visualization, also referred to as "mental imagery" and "mental rehearsal," as well as by other terms, is the creation of pictures or vivid thoughts in one's mind. It's a marvelous power made possible by the human brain. In fact, man is the only creature who doesn't have to rely on past performance to control present action. He has an imagination; he can creatively visualize.

Does visualization work? Just prior to the 1980 Winter Olympics, Soviet sports scientists took four groups of world-class athletes and put each of them on a different training regimen: 1) 100 percent physical training, 2) 75 percent physical training and 25 percent mental training (visualization), 3) 50 percent physical training and 50 percent mental training, 4) 25 percent physical training and 75 percent mental training. Group 4 showed the greatest improvement, followed, in order, by groups 3, 2, and 1. These, of course, are world-class athletes whose physical skills are already highly developed. But visualization training can help anyone to perform closer to his/her optimum skill level, whatever it happens to be at that moment.

To further support its immense potential, consider that visualization is the same tool the Yogi uses to increase or decrease heart rate, stop or start the flow of blood, control otherwise automatic reflexes like peristalic action, regulate the body's temperature, and more. It is the same tool that is used by countless people who have turned the tables on physical ailments as serious as cancer. Dr. Norman Cousins is probably the most widely known individual to have accomplished the task of curing cancer with positive imagery and thoughts. Visualization is used by gymnasts, divers, downhill skiers, weight lifters, track-and-field athletes, professional football, baseball and basketball players, archers, and bowlers. Seek the top athletes in any sport and you'll discover that either by formal training or by experience and intuition, they have learned to create successful performance images and to then match them in play.

How do golfers use mental imagery? The applications are numerous. The most commonly discussed are the images one uses to produce a successful shot. They can be realistic like a yellow spray-painted stripe on the putting green running from the ball into the hole, or surrealistic such as a bright red "V"-shaped plastic trough, similar to a long stimpmeter, with little elf-like creatures in Tinker Bell outfits standing on the sides to see that the ball "stays its course." Don't laugh — use *anything* that works. Visualization can tie the target to the swing. (Illus 19-11)



Illus 19-11
A player should create a strong image of the target in his mind, then set the clubface and his body to play to that target and sense or feel the swing that will direct the ball to it.
Photo by John David Heckel

A player has choices. He can picture the ball's flight and final destination, his own perfect swing or that of another model like Al Geiberger from Sybervision; he can form an image of a technique position in the swing, a swing path line on the ground, or the club-shaft riding on a plywood swing plane. The images are limitless. They can be colorized, and the smell of the grass and crowd noises can be added. Dave Stockton recalls how, during the Tuesday practice round for the PGA Championship at Southern Hills in Tulsa, he strode up the 18th fairway and vividly pictured and heard the crowd applauding as they do when the champion is "coming home" on the final day. The fact that it actually happened to him on that Sunday should not be considered a coincidence.

Desire, Motivation and Strength of Character

The motivation to *start* a task may be externally influenced, coming from other people or imposed conditions. But, *the motivation to finish it must come from within.* For that reason, professionals should focus on enhancing the student's self-motivation. *Fan the sparks of desire into flames of passion, for passion is the fuel that drives champions.* Jack Nicklaus, as a junior, never had to be told to practice. The young Gary Player was on the range until the sun set because he chose to be there. Arnold Palmer's constant goal was to be on the golf course. In the words of Palmer's father, "Arnold was the worst shop assistant I ever saw, because he was forever locking the door and going to the practice tee when he thought nobody was around."

"We use imagination to translate theory into feeling."

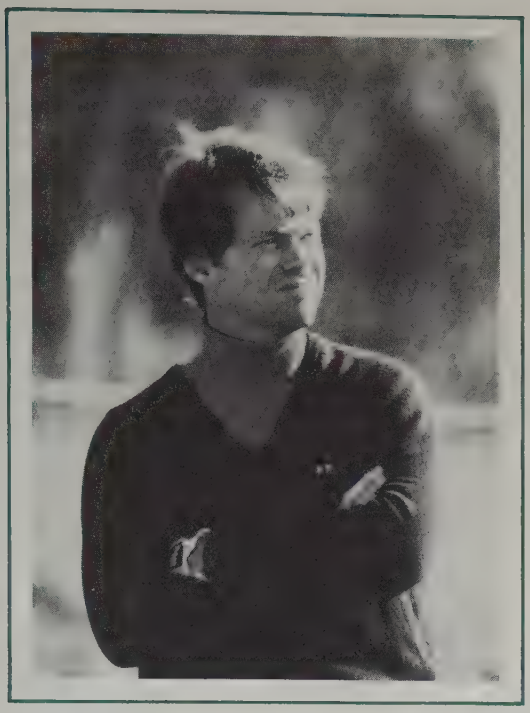
Percy Boomer

Some might claim that the desire is either there or it's not, that you can't create desire in someone else. (Illus 19-12) But desire is a natural human characteristic, everyone possesses it, and the effective teacher can ignite it. An excellent example is the Suzuki method of teaching music to young people. If parents want their six-year-old child to learn the violin they might first casually expose the child to enjoyable violin music. Maybe one of the parents would play the instrument as well. Then a child's-size violin would be placed in a conspicuous location in the home, but the child would be told he/she was not allowed to touch it. When the child's natural curiosity peaked and he/she pleaded to be able to handle the instrument, the parents, after first refusing, would relent but only allow 30 seconds of handling. Then the violin would be put back in its place. Handling time would be gradually increased until the child showed an interest in learning how to make sounds. This desire would lead to instruction, but only in small doses. Additionally, a strict rule would be imposed that the child was not allowed to have the instrument to practice with for more than 15 minutes a day. When the child requested more practice time it would be given reluctantly, but only a small amount. By now the picture should be clear. The child *never* has to be told, "Go practice your violin!" From this self-motivating style comes world-class performers, enhanced by parents and teachers.

"...good players aren't worried about what anybody else thinks of them. They don't want to **appear** *to be mentally tough. They want to* **be** *mentally tough. And they do that by playing their own game, shot by shot, at their own pace and tempo."*

Dr. Bob Rotella

Illus 19-12
The desire to practice till the sun is gone... is it inherent or can it be developed?



Illus 19-13
Great performers are competively tough people. They have strong character. PGA Hall of Fame star Tom Watson is a classic example.

Photo by Stephen Szurlej

"Twenty years ago I was 28 and broke and that's a hell of a difference." (Commenting on his present vs. previous performance level and the importance of desire.)

Arnold Palmer

"I don't think I've ever gotten scared on the golf course. After all, what is there to be afraid of? I'm not going to die or lose my family, not even all my money. It's first a game."

Ray Floyd

A contrasting but more familiar scenario is the parents who push their child into golf lessons at age seven, make him practice, buy him every available piece of equipment, and give him everything he wants only to produce a winner at age twelve and a dropout at age sixteen. The message again is: ***desire must come from within, however it is initiated.***

Enhancing desire in adults will come largely from the promise of *recognition* and *reward.* The creative professional provides opportunities for both recognition and reward with his golf program and excites the imagination of his players. He encourages — almost demands — goal-setting by his students who are on an improvement series. But the professional must not forget that internalized goals are set by the student according to his or her desires, with the teacher being only a counselor. (For information on characteristics of mentally tough performers and a formula for success, both by Dr. James Loehr, see Appendices 19-B and 19-C.)

Character

The final element in developing mental strength is character, as expressed by traits: Mental toughness — Perseverance — Honesty — Dedication — Responsibility.

Seve Ballesteros in his book *Natural Golf* with John Andrisani (Atheneum, 1988), makes this marvelous observation on courage which so typifies Ballesteros' own behavior. "Many good golfers never live up to their full potential because they never learned the secret of developing a courageous on-course attitude. These are the babies who throw clubs, continually cuss themselves out, sulk, or even walk off the course after one too many bad bounces or bad holes. Their problem is that they expect perfection, whereas the complete and intelligent and courageous golfer respects the game's unpredictability, takes it in stride, and gets on with the job as best he possibly can. Even when he's having an absolutely awful day, this player still gives every shot 100 percent concentration. His final score is his absolute best effort for that day, and biting the bullet like this hardens him for future rounds. Thus, in my opinion, courage is not inherited, but developed through a combination of experience, sheer grit, and determination." (Illus 19-13)

Course Management

Another part of mental/psychological strength for golf is the acquisition of course-management skills. These are separate from the emotions and personality traits just discussed, though one's emotions definitely play a major role in course management execution. Examples of these skills are: perception, judgment, shot selection, special knowledge (related to the weather conditions, the course, rules, equipment), planning, club selection, preparation and pacing. (Illus 19-14)

"When you miss a shot, never think of what you did wrong. Come up to the next shot thinking of what you must do right."
Tommy Armour

Illus 19-14
How far is it to carry the water? To lay up? Important course management skills.
Photo by Jeff McBride

Best described, course management might just be "playing smart." That's common-sense smart, not intellectual smart. It's what architect/essayist R. Buckminster Fuller calls *Dymaxion,* "getting the most out of the least."

Entire books have been written on this subject so there is a wealth of opinions available. At the end of this section is a list of course management ideas, plus more in Appendix 19-D, "Strategies for Getting Your Game Under Control" by PGA member Chuck Cook. But one of the most succinct, realistic and useful descriptions of how a player should manage himself in golf competition comes from the book, *Maximum Golf,* by former PGA Tour winner John Schlee with Swing Meyer (Acorn Sports, 5816 Shakespeare Road, Columbia, SC 29204).

"In golf, we mark our progress by something called a score. For 12 years, my score put food on the table, clothes on my back and a roof over my head. Nobody cared how I played. Nobody cared *what I could've shot.* At round's end, they asked me one question, 'What'd you shoot?'

"The average expert player — if he is lucky — hits six, eight or ten real good shots a round. The rest are good misses."
Tommy Armour

"I'll never forget the Houston Open one year. I was on the 18th green, facing a 60-foot putt for birdie. As I started my pre-shot routine, I noticed a group of my fellow competitors standing outside the scorer's tent, watching me intently. I thought to myself, 'This is neat, all those guys watching me.'

"I left the putt hanging on the lip. As I walked up to tap it in, all I saw were 15 or 20 backs headed for the clubhouse. What's the bottom line? Had I three-putted, they all would have made the cut.

"Golf is like tennis. The game doesn't really start until the serve gets in."
Peter Thompson

"A score is. It is posted, then it dies, no matter the number. Here are the rules of the score:

The Rules of the Score

1. Always have a procedure to a specific target.
2. Play each shot, one shot at a time, to the best of your ability at that moment.
3. When the shot does not please you, forgive and forget, then play the next shot to the best of your ability, at that moment.
4. Continue this procedure until all 18 holes are played.
5. Post the score.
6. After the round, applaud your best efforts, then analyze your mistakes, correct them in your mind, and the round is finished.
7. Compare yourself to no one else — only the golfer you know you can be.
8. Repeat the procedure and post a new score, letting yourself get closer to the edge of your ability.

"We share a common love: the game of golf. Through this connection, I can say in all candor that 'I love you.' And along with that love comes boundless forgiveness. Be your best friend. Then, forgive and forget."

"The woods are full of long-hitters."
Harvey Penick

Developing a Program for your Student

There is certainly one commonality between the acquisition of ball-striking skills and mental-performance skills… the necessity for practice. The most difficult lesson for the professional to communicate to his student about psychological performance is that, to improve, one must practice as diligently as one does when trying to improve his ball striking. Techniques for habit alteration or behavior modification have been successfully employed in psychological circles for some time. A person wishing to change an existing negative habit or behavior pattern while substituting another, practices the new habit a given number of repetitions for a selected number of consecutive days, some claim as quickly as three to four weeks. By this time, the new habit establishes itself as the accepted pattern. Three to four straight weeks of such practice means real commitment.

"Everyone has his own choking level, a level at which he fails to play his normal golf. As you get more experienced, your choking level rises."

Johnny Miller

A simple program that employs several of the strategies that can enhance psychological performances is labeled *"The Competitive Edge."* (f 19-5) It consists of six segments of information printed on a card which the player keeps handy so that he or she can read it each day. The recommendation is that it be read a minimum of two times per day for a month. By then, the concepts he/she has been reading should be well established with the player. The text of the card is annotated here as are descriptions of the value and purpose of each of the six points.

f 19-5 Originally appearing as "The Carolina Edge," by Gary Wiren.

"In golf as in life, the attempt to do something in one stroke that needs two is apt to result in taking three."

Walter Camp

Mental Practice Card

Picture yourself doing the following…I will close my eyes and begin to relax, imagining that I am in a very restful place — the beach, the woods, a mountain, a meadow or a cozy room on a snowy night. I will then visualize the following written material happening in slow motion, I will read it unhurriedly, with several pauses, to allow for the described feelings to establish themselves.

1. MY BODY WILL BECOME VERY RELAXED. / First, my hands and fingers will feel heavy and relaxed. / Then my forearms will become free of tension. / Then my biceps and shoulders will feel relaxed and very heavy. / My neck will relax and my head will feel heavy. / My facial muscles will become very loose. / Then the back of my neck and upper-back muscles will lose their tension and become relaxed. / My chest and stomach will relax. / Then my legs and buttocks, my thighs, knees and calves will feel free of tension and very relaxed. / I will feel that all of the tension is draining out through my feet and toes. / I feel very calm — calm and relaxed, CALM and CONFIDENT!

"Once you learn how to strike the ball, course management and psychology become the dominant factors in successfully playing the game. If you can't manage yourself and the course, you can't play."

Anon

Explanation: Progressive relaxation is a widely practiced skill which enhances one's ability to both think and perform. This exercise is a means of quieting your mind and making it more receptive to the suggestions which follow. After reading this first portion through once, go back and slowly work through the suggestions until your body takes on a calm, relaxed feeling. Two key words for the player to remember in competition are CALM and CONFIDENT.

"I never hit a shot, even in practice, without having a very sharp, in-focus picture of it in my head. It's like a color movie. First, I see the ball where I want it to finish, nice white and setting up high on the bright green grass. Then the scene quickly changes and I see the ball going there; its path, trajectory and shape, even its behavior on landing. Then there's a sort of a fadeout and the next scene shows me making the kind of swing that will turn the previous images into reality."

Jack Nicklaus
(from Golf My Way*)*

2. I KNOW WHAT MY BEST SWING LOOKS LIKE AND WILL VISUALIZE IT THREE TIMES. / I KNOW WHAT MY BEST SHOTS HAVE FELT LIKE AND I WILL SENSE THAT FEELING THREE TIMES.

Explanation: Frequently visualizing and feeling your best swing gives you confidence in how it looks and feels when performing well. If these pictures and feelings are clearly established they will carry over into competitive rounds even under stress.

3. I AM A GOOD PLAYER. I AM A SMART PLAYER. LIKE A PROFESSIONAL, I KNOW WHAT I CAN DO. I DON'T LET THE COURSE, OR SPECTATORS, INFLUENCE ME AND KEEP ME FROM DOING WHAT I KNOW I CAN DO. I AM TOUGH. I DON'T QUIT AND I DON'T NEED EXCUSES.

Explanation: Self-affirmation technique. "I'm good," "I'm smart," "I'm tough," etc. If a person says, two times a day for thirty days, "I don't quit," when the temptation to quit does arise, chances are very slim that the player would do so.

4. I HAVE A REGULAR ROUTINE THAT I FOLLOW FOR EACH SHOT...WOOD CLUB TEE SHOT, FAIRWAY WOOD, FAIRWAY IRON, PITCH, CHIP, BUNKER SHOT AND PUTT. I WILL PRACTICE THAT ROUTINE UNTIL IT BECOMES AUTOMATIC.

   — Assess the lie.

   — Visualize the shot, its shape, trajectory and where it will finish.

   — Make the club selection.

   — Feel the shot — physically, by practice swinging or mentally, by rehearsing the physical feel.

   — Complete the pre-shot routine: grip, aim, set-up.

   — Focus on a key thought, cue, position, feel or picture — visualize again.

   — Swing the club...sending the ball to the target.

   — Evaluate the response. If it's a good shot, implant it in the brain. If it's bad, make the corrected response and visualize that result. (See Appendix 19-E for information on charting results.)

"Consistency in golf will improve when the player sorts out what is important and what isn't. Decide what has to be done, do it, and don't worry about the rest. Then, realize it's not going to be perfect."

Anon

"I never knew what top golf was like until I turned professional — then it was too late."
Steve Melnyk

Explanation: Developing a routine helps occupy the mind, keeping it focused on positive preparation rather than conjuring up pictures of possible negative results. A routine also lends confidence to what you are doing. "If I do this, this and this, I will come up with the correct response."

Ask the player his routine. If one doesn't come to mind quickly, he probably doesn't have one. He needn't adopt the exact routine presented here but may borrow from it to establish his own.

"Learn one basic shot and stick with it, one you can hit under pressure. If you have a good basic shot you'll rarely have to hit a fancy one."

Harvey Penick

5. COMPETITIVE GOLF IS A GAME OF NUMBERS. I WILL PLAY AS IF I KNOW THAT. I WILL BE PREPARED TO ANSWER THE QUESTION, "WHAT DID YOU SHOOT?"

Explanation: This statement clarifies the objectives of *competitive* golf. (f 19-6) It establishes the goal, to shoot a low number. Good form, long drives, and greens hit in regulation all mean nothing if they were not a positive contribution to the score.

f 19-6 Remember, this objective applies to competitive golf. Recreational golf may have entirely different objectives, with score only a secondary consideration.

6. I AM NOW GOING TO PLAY IN MY MIND A TEE-TO-GREEN ROUND AT THE COURSE ON WHICH I NEXT WILL PLAY, SEEING ONLY POSITIVE RESULTS. (Illus 19-15)

Explanation: Positive mental rehearsal of the upcoming competition can make visualization on the course in actual competitive play flow more easily.

Illus 19-15
Visualize the holes you will be playing the next day and play them over and over in your mind.

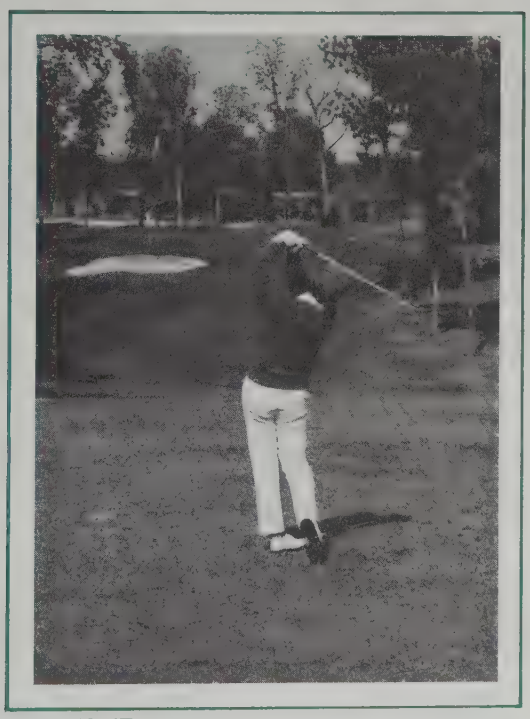
Photo by Jeff McBride

"A five with a slice will always beat a six by Arnold Palmer."

Jesse Brown

Additional Suggestions for Course Management & Psychology

Illus 19-16
Larry Mize couldn't alter the condition, only do his best and he did, holing this shot to win the Master's.
Photo by Stephen Szurlej



Illus 19-17
Know the pin locations and tee marker positions to get the correct distance on par 3's.

1. When the tee goes in the ground on the first hole be ready to start the counting machine, otherwise don't swing.
2. One can't always control the conditions but he can control how he reacts to them. Neither can he always control winning or losing, only whether or not he did his best. (Illus 19-16)
3. Tournament golf is an illusion. The only difference between the friendly round and the competitive round is in the mind.
4. When should a competitor take a chance in golf? When he has weighed the worst possible result and accepts the risk.
5. Shutting down the left hemisphere (cognitive) just before and during each shot and releasing the capabilities of the right hemisphere (affective) is an essential part of the accomplished golfer's mental repertoire.
6. Encourage people to get yardage on the course whenever possible and begin to develop an understanding of how far they actually hit the ball. (Illus 19-17)
7. The most frequent answer given by the one-year touring professional when asked, "What have you learned?" is, "Patience, learning to stick to a game plan and wait for the birdies and breaks to come."
8. One of the best strategies for relieving tension is to reduce the consequences, put it in perspective. Realize that in the big picture of life it's not that important. Relax and let it fly.
9. The greater the pain which accompanies our mistakes the more vivid the impression. This reality hinders the player facing an often-failed difficult challenge to keep the positive images flowing.
10. Discipline is the secret of all champions. Discipline means giving things up, mostly things we'd rather be doing.
11. An opponent is most vulnerable when he's ahead.
12. Playing in the present, is a widely recommended but seldom utilized practice.
13. Trying to "cut the corner" on a modest dogleg around trees or water, when a straight shot would give almost the same result, has caused its share of double bogeys. (See Appendix 19-F)
14. Some ABCs of course management might look like this:
    - — Find a level spot on which to tee.
    - — Tee up on the side of trouble and hit away from it.
    - — Use a tee on par 3's.
    - — Note pin locations when you pass a hole.
    - — When under pressure play the shot in which you have the most confidence.
    - — Play more conservatively and within yourself when facing unusual weather or terrain conditions.

And finally, a solid course management tip that comes from the greatest amateur of all time, Bobby Jones, "It is nothing new or original to say that golf is played one stroke at a time. But it took me many years to realize it."

CHAPTER 20

Rules, Etiquette &

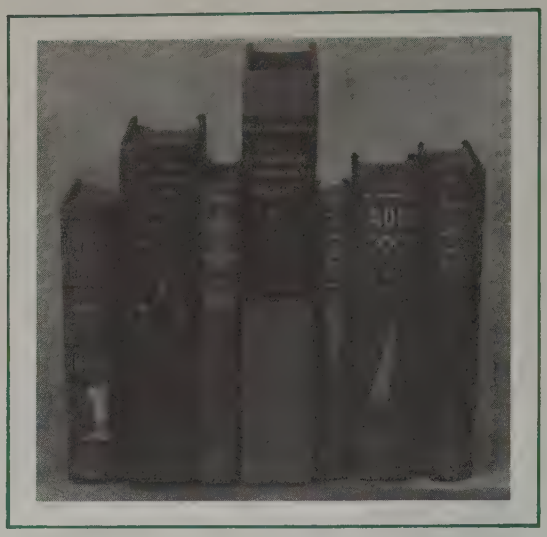
The Pleasure of Golf

CHAPTER 20

Rules, Etiquette & The Pleasure of Golf

There is so much more to playing golf than striking the ball. There is also more to golf than playing the game. Those who seem to appreciate golf the most, and who do so over an entire lifetime, are the ones who not only play but who have also been immersed in the game's lore. Lore could include a lengthy list of subjects, consider: architecture, equipment, history, agronomy, rules, physical training, swing technique, psychology, stories, tournaments, records and feats, players, courses, collectibles and a marvelous literature describing it all. (Illus 20-1) Golf aficionados seem to develop a feeling for the game that transcends the club they hit on hole #8 or what they shot on the back nine last Sunday. The golf professional educated in the game's lore brings an added dimension to the lesson tee. He understands that "learning the game" is more than just learning how to play it.

f 20-1 Metropolitan Golf Association
125 Spencer Place
Mamaroneck, NY 10543



Illus 20-1
Golf has a fascinating history with equally compelling literature to match.

Start with

A good place to start a golfer's education is with the rules which must certainly also include the game's etiquette. Golf can be an intimidating experience for new participants. One of the reasons is that they may be aware that there is a procedural format and behavioral code for golf which is unfamiliar. A golfer can hardly be expected to play by the rules or abide by the courtesies of the game if he doesn't know them. Where should he learn? Logically and practically he should learn them, or at least acquire the tools on how to learn them, at the place where he will play, his home golf course. As for knowledge concerning the rules, some astute observer of golf once noted, "The chances of a golfer making a hole-in-one are much greater than the chances he'll ever read the rule book." How can the professional effectively present information on the rules and etiquette of golf so as to create a more knowledgeable and enjoyable group of players?

First, come to expect adherence to the rules. The professional should establish as a goal that his club/course will be noted for the fact that its golfers know how the game should be played. This can be accomplished by implementing some of the following suggestions:

1. See that the members/players have easy access to USGA Rules books by either offering them for sale in the shop, encouraging the club to provide them to members along with the club rules, or give them as gifts to the customers with compliments from the pro shop staff. (Illus 20-2, 20-3, 20-4, 20-5)
2. When teaching, include at least one rule explanation along with instruction sessions, particularly in group situations.
3. Post a "rule-of-the-month" in the ladies' and men's locker rooms or main bulletin board. In this way the entire rule book can be covered within two golf seasons. Convey the most common situations. Keep it simple. Don't get side-tracked on obscure "once-in-a-lifetime" situations.

Illus 20-2
It is the knowledge of and adherence to The Rules of Golf *that allow people to play the same game.*

f 20-2 The PGA also has a Master Professional Thesis on file pertaining to Rules.

4. Have an annual rules quiz contest. Contact the Metropolitan Golf Association for samples of their annual rules quiz edited by Dr. Richard S. Silver. (f 20-1)
5. Attend PGA-USGA rules workshops. This will enhance the professional's position as the resident expert. Encourage club members who are particularly interested in rules to do likewise. (See Appendix 20-A for a list of golf's first rules.) (f 20-2)

The process is simply one of education. It is interesting to note that in The Netherlands a golfer is not allowed on a Dutch Golf Federation member course unless the player has a "license." To earn a license, golfers must pass certain basic skill performance exams as well as a written test on rules and etiquette. One can imagine that The Netherlands is a country that must have polite, knowledgeable golfers.

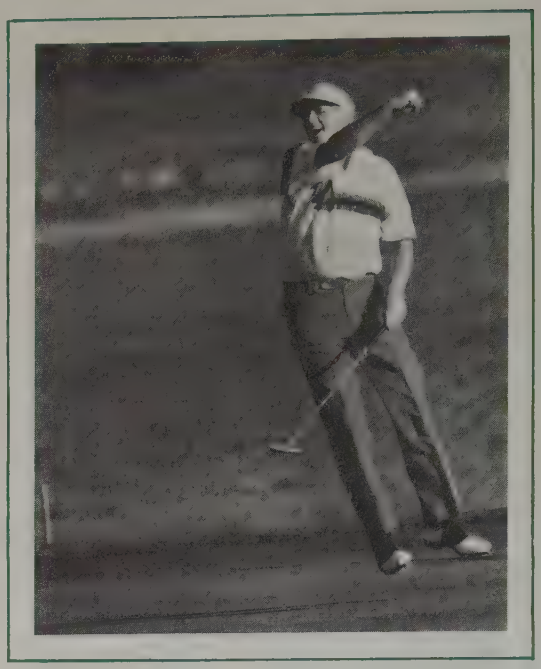
Illus 20-3
Players must know the rules, such as how to mark a ball.
(Fred Couples, PGA Tour professional.)

Illus 20-4
...how to drop a ball.

Illus 20-5
...what markings on the course mean, such as ground under repair. (Don Smith, PGA of America tournament staff.)

The Joy of Golf

Teaching the rules and manners of golf, though not as widely practiced as it probably should be, is still more extensive than the teaching of *how to better enjoy golf.* It's an undertaking so rarely attempted. How strange...while we acknowledge that "Golf is a game and as such is meant to be enjoyed," we think very little about teaching people to enjoy it. Veteran PGA professionals probably have attended more seminars than they can count on subjects like "How to Stop the Dreaded Slice," "How to Play from Pot Bunkers," "Psychology on the First Tee," etc., but how many presentations have been offered on "How to Teach Golfers to Have More Fun?" (Illus 20-6)



Illus 20-6
The elation of victory is only one of golf's joys. (Larry Mowry winning the PGA Seniors' Championship.)
Photo by Richard Dole

Why Should I Play Golf?

There are many sources of enjoyment available to a golfer other than "shooting a good round." Players who aren't aware of these opportunities, should be taught. The professional is the resident teacher. Here is an edited list of some of golf's joys written by master professional John Gerring:

"Why should I play golf? That question is often asked by non-golfers who cannot comprehend why a game has so many participants who love the sport to such a high degree. I feel these nonparticipants do not understand our devotion to a game called GOLF. Maybe these 'reasons' will help you when that question is posed."

A Trip Into Tranquility: Everyone needs a change of scenery. Golf is played on Mother Nature's own turf. For a few brief hours you can change your environment and give your mind a chance to suppress and alleviate all forms of distress. It's better to allow the body's natural protective mechanism to work than to take man-made drugs. (Illus 20-7)

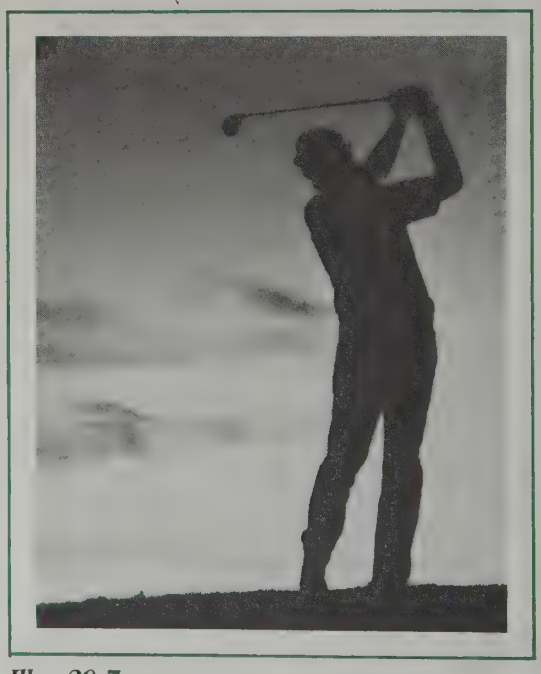
A Change of Pace: It's a game that defies speed and a quickened pace. Four hours with friends all laughing at one another. If four hours is too long, you can always quit at the end of 9 holes and hurry back to the everyday stresses and worries that you were trying to get away from in the beginning.

Builds Character: That it does. You must accept adversity and success within minutes. Not only does the game build character, it also reveals it.

Sociability: One of the few games that allows you to visit and converse with friends as you play.

Even-Steven: The handicap system permits everyone to compete on an equal basis. The game embraces *everyone* and lets each player enjoy the competition.

Individualism: Hitting a golf ball does not require any special physique so *everyone is qualified!* "It ain't much...but it's all I got... I intend to make it work," philosophy. The hitting of a golf ball



Illus 20-7
There are many other rewards in golf if people will only look...such as trips into tranquility. Forgetting about life's problems and thinking about golf.
Photo by Jeff McBride

Illus 20-8
There is probably a beautiful golf course at least within an hour's drive of most people's home.

permits a variety of methods and the only thing that really matters in competition is how one scores.

Decision Making: The game allows each player to make his or her own decisions in a prompt manner. Each correct decision brings on a glow and feeling of satisfaction, and even on a bad day there are a lot of glows *if you look for them.*

It's Close: The golf course is relatively close compared to taking a trip to the beach or mountains to get away. Proximity is one of the game's greatest virtues. (Illus 20-8)

Longevity: "A game of a lifetime." (My father has been a member of the PGA for half a century.) Each year more players are shooting their ages. I have a member who has been playing for 65 years and shot his age at 85, eleven times last year. What a thrill for everyone! (Illus 20-9, 20-10)

"Golf is the only sport where a man (of) sixty can play with the best. That's why golf is such a great game. And no one has ever licked it."

Sam Snead

Illus 20-9
You can start when you are young (John Ross, age 16 months)...
Photo by Richard Dole

Illus 20-10
...and play for a lifetime like Andrew Carnegie (on the left) and John D. Rockefeller, who shared the mutual love of golf into their 90's.

Exercise-Calories: Carrying your own bag and walking 18 holes will use up more calories than jogging 3 miles.

Competition: At every course there is friendly competition which can satisfy the competitive urge. There is no lack of competition if you have this type of interest and drive. (Appendices 20-B and 20-C)

Sportsmanship: The game makes everyone face success and failure with each shot. You must also accept the good breaks with the bad. It gives you the opportunity to exhibit self-discipline in the face of adversity. (Illus 20-11)

Entertainment: Golf is a game! Please don't lose sight of that fact. In this hectic world, we all need to play more games for enjoyment.

Be Yourself: It is one of the few sports you can play alone. You don't need a partner, and if you wish to spend a few hours by yourself, there could not be a better opportunity than a golf course or practice range.

Practice: Many players enjoy the challenge of the golf swing. An hour or two hitting practice balls and working on your technique is a wonderful remedy for tension and distress. There are some players who enjoy practicing even more than playing.

Integrity: One of the few sports that has no referees or umpires. You are on your own, as an honest man or woman. In this way the game allows you to like yourself a lot better if you play by the rules.

"I would like to state that I have seen this great game save a lot of lives from sadness, disaster and even death. All the reasons above will not apply on one given day, but every round of golf can touch lightly on many of them. The game is intoxicating to those who play and therefore, helps us renew and refresh our outlook towards this complicated world. The game is like a drug, but it's harmless and it's available for everyone to enjoy. It's not just a sport or a game, but a grand way of life."

Illus 20-11
A chance to be the sportsman in friendly competition is demonstrated by Lonnie Nielsen and Bob Ford in the finals of the PGA Match Play Championship for club professionals.
Photo by Jeff McBride.

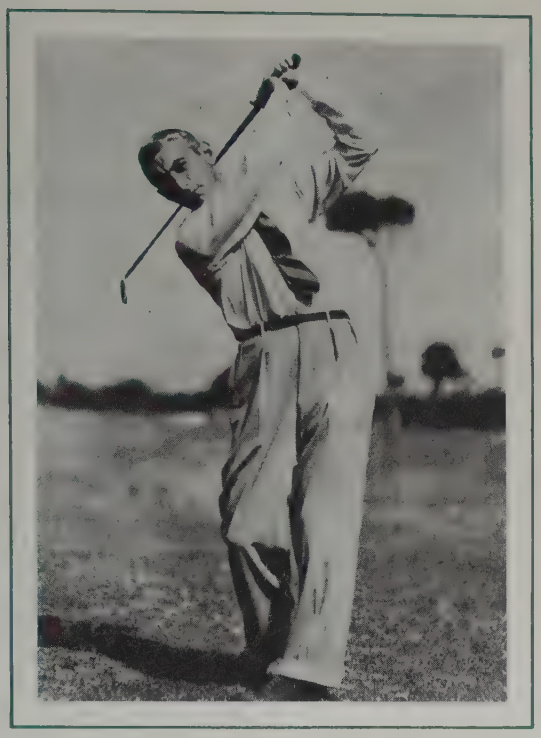
An Emotion That Destroys

An unfortunate occurrence in golf is a player losing his temper. Getting angry because of what happens on a golf course, no matter what or who caused the anger, is plain nonsense if it destroys what is supposed to be an enjoyable experience. Negative actions by one golfer can spoil not only his own pleasure but also damage the fun for the rest of the group. (Illus 20-12)

Dr. Orrin Hunt in his book *The Joy of Golf* suggests seven steps to eliminate temper from the personality while playing. He prefaces them with following comments.

"What are the benefits of eliminating temper? I play better golf; my friends and family have rejoined me and, best of all, I feel *good* about myself. I truly do experience *Joy* when I play golf!"

Illus 20-12
Anger has never been compatible with the essence of golf.
Photo courtesy of U.C. Ferguson



Illus 20-13
Tommy Armour had a sensible philosophy for playing golf.

"If you want to eliminate temper from your personality while playing golf (and, incidentally, enjoy the benefits of that absence that carries over into the rest of your life), do the following:

Step 1 — Make a decision right now to commit yourself to the conviction that you are in charge of yourself.

Step 2 — Subscribe to the concept that *you* and you alone own your feelings. Nothing outside of yourself can dictate to you how you feel, unless you give it or "them" permission to do so.

Step 3 — Temper in all forms, including hostility, irritation, anger at yourself, and anger at others (persons, things, or circumstances), will be eliminated from your personality.

Step 4 — On each round of golf you play from now on, mark a "T" on your personal score card at every hole where you become even slightly perturbed.

Step 5 — Temporarily stop playing for scores. Your new game is to play for zero "T's" on your score card. If you have even one, you lose the round. If you have none, you win!

Step 6 — Continue playing for a total absence of "T's until you accomplish at least three "T"-free rounds. Then resume your usual score-conscious efforts.

Step 7 — Never let a "T" occur on your score card again.

All you have to gain is the Joy of Golf in its *real* sense. All you have to lose is your temper."

Develop a Realistic Expectation Level

"All my life I wanted to play golf like Jack Nicklaus, and now I do."
Paul Harvey (News commentator after Jack Nicklaus shot an 83 in the British Open)

"The person who enjoys his work as much as he does his hobby is a genius. The golfer who lets frustration destroy the pleasure of the game is a fool."
Anon

Golf is a simple game: knock a ball from here to there with a stick, and hole it out. Simple, yes; but not easy. It just looks easy, particularly on television when one watches the greatest players in the world hit incredible shots in routine fashion. When the show leaves the air, what happens? The golfing viewers flock to their courses immediately after switching off the set. They have spent two hours watching professionals who have practiced exhaustively since they were in grade school, who have had the finest teachers in the world, who play with the best equipment, who compete three out of every four weeks during the year, and who feel that par is a bad round. In comparison, the TV viewer is lucky to squeeze in two games a week, practices infrequently, takes too much of his instruction from friends, and uses clubs that are not matched to his swing. Yet this golfer somehow expects to perform like those players he saw on TV. How much more healthy and enjoyable it is to have a reasonable level of expectation. The over-competitive mind-set is unrealistic and puts too much pressure on what should be a *more relaxed* experience. No player is ever going to be perfect, so golfers should become familiar with the words of Tommy Armour who said, "Missing simple shots is part of being human." Golfers are going to err so they should be prepared for it. (Illus 20-13) (For an enjoyable discourse on keeping things in perspective, see Appendix 20-D.)

Getting the Most From the Experience

Let's put things in perspective. The vast majority of golfers don't play for a living; they play for enjoyment. So the question is, "How are they going to get the most enjoyment from their golf?"

One approach is to encourage players not to put all their eggs in the basket of scoring. Sure, they want to play well, and when they do, they *will* enjoy it more. But if they only have fun when they are playing well, they are going to have fun about 10 percent of the time.

Have them look for other elements of the game from which they can derive satisfaction and pleasure other than a low number on a scorecard. Playing with people they enjoy is worth a lot; so is a beautiful day; a break from the routine; a walk among the trees; a bird, a flower, a butterfly, a beautiful setting; appreciating a good shot by an opponent; a laugh, a challenge, a long putt that drops, no matter that it's for a seven. (Illus 20-14, 20-15, 20-16) (Appendices 20-E, 20-F) Encourage players not to let the beautiful setting disappear because they've made a double bogey. We as people are not our golf games. How we react to our golf performance, however, may reflect WHAT *we really are.* (f 20-3)

"Golf etiquette is kind of like the second verse of the national anthem — good stuff but read by practically nobody."
Herb Graffis

f 20-3 ***In*** Personal Par, ***a book written by Barbara Keogh and Carol Smith, a psychological system to enjoy golf more is presented for women but could apply to anyone.***

Illus 20-14
There is so much to enjoy in golf, a bird (or several of them) . . .
Photo by Jeff McBride

Enjoy —

It's a Winning Attitude

It is an incontrovertible fact that world-class athletes perform best in a state which may be described as "enjoying the experience"... even in the heat of battle. Adding a little Fuzzy Zoeller "walk in the park" approach to the game may not only make it more fun, it may also make it better.

"I play for fun, friends, exercise and fresh air."

Bill Roland, golf writer

The professional should consider suggesting to his students that if they aren't getting what they want from their golf, then change... Change something. Don't get stuck in a tedious golfing rut. Why not play with people who are fun? Suggest various forms of competitive play: best ball, scramble, Scotch foursome, mixed foursomes, alternate shot, match play rather than always for medal score. Notice and appreciate the beauty of the surroundings. Contrast the relaxed atmosphere to what is found in most working environments. If playing in the middle of the day, riding a golf car in a competitive event with a group they don't really like, at a course that plays too long to post a decent score and isn't enjoyable, then they should change! Next time suggest they tee off at 7:30 a.m., or late in the day, walk with one or two friends, play for fun from the senior tees. If that's still not it, encourage them to try some other combination; but help them find that special blending of elements so they can answer more often, "I really had a good time."

"Golf is the toy department of life. So it should be enjoyable. So if you are going to teach it, make your teaching, 1) correct; 2) simple; 3) fun."

Herb Graffis

It's their golf life. Encourage them to live it the way they want and to have fun!

Illus 20-15
...a flower.

Photo by Jeff McBride

Illus 20-16
...a beautiful setting.

Postscript —
The Purpose of It All

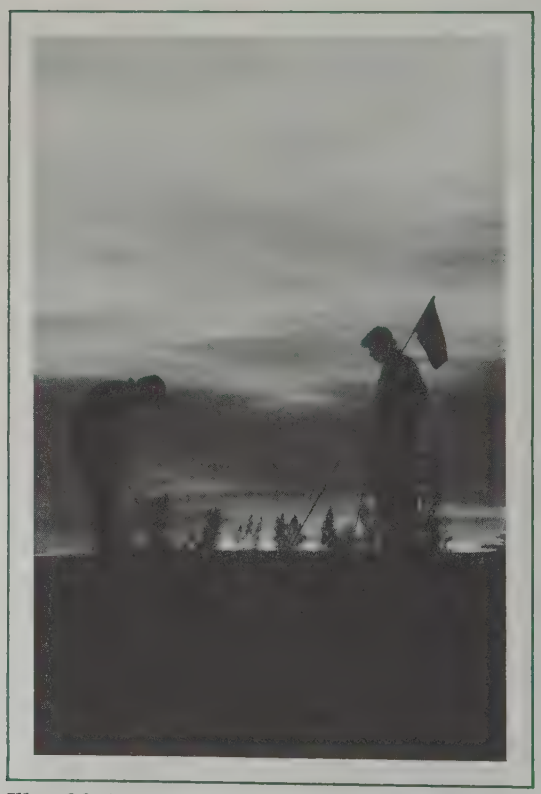
What is the purpose of golf? What is the value of this game to an individual — to the world? Is a vocation in golf worthy, or is it a waste of a lifetime? These questions have been seriously pondered by a number of golf professionals at sometime in their career. The answers will reveal how you perceive your occupation, your position within that occupation, and how well you perform in that position. But let's first look at the game itself.

"Golf is the only game having its etiquette modified in 12 articles of conduct representing several centuries of civilized experience."
Anon

The purpose of golf can be included within the answer, "In life, what is the purpose of play?" Human beings have a fundamental desire for play which is as old as man himself. Toys have been found among the ruins of ancient Babylonia, China and Egypt with evidence of various forms of games or contests to match. *Play is what people do for fun or enjoyment.* An adult enjoys it in his leisure away from work, a child as a part of life growing up. Golf is simply one of those play choices. (Illus 20-17)

There are various forms of play:

1. Active motor play such as running, jumping, swimming and sports like golf.
2. Passive intellectual play such as cards, chess and crossword puzzles.
3. Sensory play, or being a spectator of a game or sport.



Illus 20-17
"Play is what people do for fun or enjoyment." Golf is one of those choices.
Photo by Jeff McBride

"Golf is like fishing and hunting. What counts is the companionship and fellowship of friends, not what you catch or shoot."
George Archer

"Golf is the Esperanto of sport. All over the world golfers talk the same language..."
Henry Longhurst

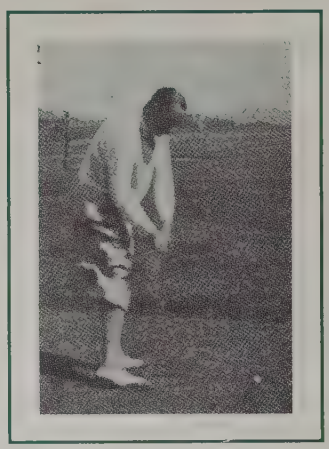
Not all people enjoy active motor play, therefore participation in sports does not appeal to them. This is something we must acknowledge...golf isn't for everyone. For others who generally do like sports, they might find golf not active enough, they prefer more rapid-moving or physically demanding games. But for millions of people around the world golf has a compelling attraction. A teacher of golf should help the student find the most appealing aspects of golf so as to make the student's investment of time productive, satisfying his need for fun and enjoyment. Some golfers seek the solitude of the game and don't wish to be forced into competition with others; some like the walk; others want "action" — competition to show who is the better performer; some may like golf because it gives them the chance to meet people and socialize; others just like to be outdoors in a beautiful setting. It's the blend of all of these benefits and more which is appealing. However golfers find their joy, whatever it is that creates excitement at the prospect of play, ***golf is their chosen game!***

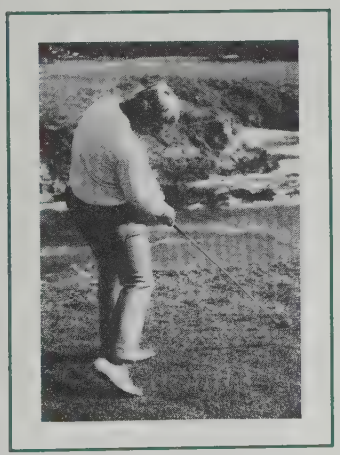
If you, the teacher, can enhance what is intrinsically good about golf; if you present it in an interesting fashion, in a comfortable setting, at a level the pupil can easily comprehend, then you are filling a role of making life more enjoyable for those whom you serve. You are contributing in part toward what some have come to call "the good life." Golf has no exclusive on this condition. It can be found in other places through entirely different activities. But you, by being good at what you do, have met the challenge on your own turf. (Illus 20-18)

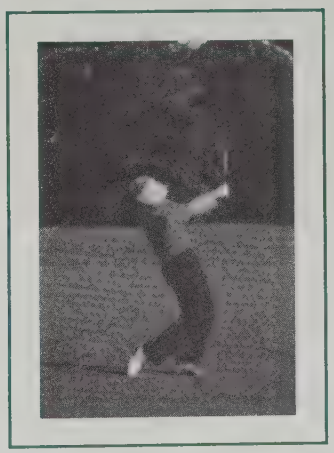
Illus 20-18
"You by being good at what you do, have met the challenge on your own turf."
(Photo of PGA member Derek Hardy and PGA Academy student.)
Photo by Jeff McBride

PHOTO GALLERY

Pictures of the Games Greatest Players







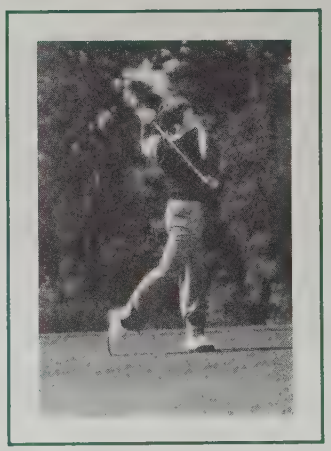


Photo Gallery

An outstanding collection of swing pictures is presented in this section. By studying these closely, two conclusions can be made:

1. There are many common positions and movements among golf's great players.
2. There are many variations of standard fundamentals which demonstrate a great deal of individual differences.

So while there are highly desirable preferences there is no one specific swing which fits all or which all must fit.

Selection of Players

The criteria for selecting players to include in this gallery of photos was:

1. Level of achievement during playing career.
2. Body type — (seeking variety).
3. Exceptional or unique style.
4. Availability of pictures.

We purposefully have excluded any remarks from the picture pages themselves. This is to let readers come to their own conclusions about what they see. The reader may wish to write his/her comments in the book and see if the thoughts correspond with those of other teachers. To start thinking about what to look for it is suggested that certain positions and moves be observed to gain insight into the player's similarities as well as differences. Note the following:

Address

— Position of hands on the grip, how far down, to what degree rotated.
— Ball position relative to the left foot, left shoulder and center-line of the body.
— Hand position at address relative to the ball, clubhead, left arm and left thigh.
— Width of foot placement and angle of left and right foot from perpendicular.
— Apparent lateral weight distribution, separately for lower body and upper body.
— Angle of forward body inclination at hips.
— Distance from ball and arm extension.
— Amount of knee flex.
— Relationship of right elbow to left (above, beneath, even).
— Head and chin position.
— Body and foot alignment (open, closed, square).

Backswing

- Relationship of club to left arm.
- Point at which wrists begin to cock.
- Angle of club when left arm is horizontal or parallel with the ground.
- Degree of rotation of clubface.
- Sequence of motion.
- Amount of upper and lower body lateral motion.

Top of Swing

- Relation of club to ground for that particular club, iron or wood, (short of horizontal, past horizontal, or right on horizontal)?
- Left knee pointed ahead, even or behind the ball?
- Head and centerline of upper body behind, even or ahead of the ball?
- Position of right knee?
- Amount of shoulder turn, hip turn and shoulder turn related to hip turn.

Top of Swing (down line view)

- Left wrist cupped, flat or bowed?
- What is the position of the clubface...open, square, closed?
- Right leg, more flexed, the same as at address, or straightened?
- Angle of forwarded body inclination increased, decreased or the same as at address?
- Club shaft parallel to target line, or pointed either right or left?
- Swing plane flat, medium or upright? Does it change from the backswing to the forward swing? How?
- Right elbow pointing horizontal, downward or in between?

Forward Swing

- What is the first move in the forward swing?
- At the beginning of the forward swing, is the angle between the left arm and clubshaft increased, decreased or the same?
- How long into the forward swing do the left arm and clubshaft retain at least a 90 degree angle?
- Does the head move?
- Does the body stay relatively level or bow toward the target?
- Does the right heel leave the ground before impact?

Forward Swing (down line view)

- The forward swing plane, is it under, over or the same as the backswing plane?
- Is the swing path from the inside, on line or outside the intended flight line?
- Where is the right elbow?

Impact

— What is the position of the clubface?
— Is the left arm extended or bent?
— Where is the lower body weight in relation to the centerline — the upper body weight?
— What is the position of the head?
— Is the left knee straight or flexed?
— Is the right heel down or in the air?
— How far left have the shoulders turned and the hips rotated?
— Is the upper body level or tilted — how much?
— Has the right arm extended fully yet?

Follow-Through

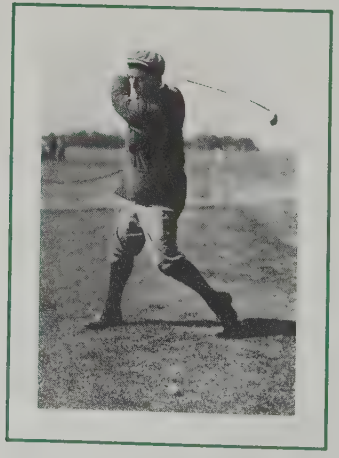
— When does the right arm go into full extension?
— What does the left arm do when the right is extended?
— At left hip height on the follow-through, what is the position of arms, hands and clubface?
— Where is the player's weight at that point?
— What is the player's head position at that point?
— In the finish position has the grip opened or stayed closed around the club?
— Is the player's body position at the finish more vertical or arched?
— Does the club finish high or move around?
— Is the left wrist still flat or has it cupped?
— Where does the body point?
— What is the position of the feet?

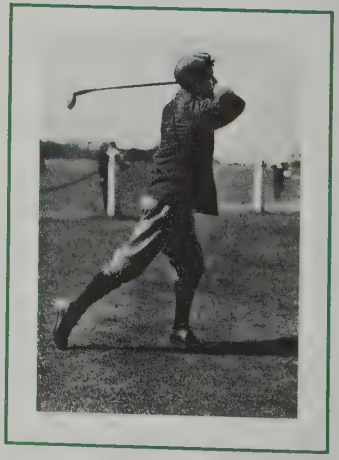
After studying the pictures and these questions, the reader may wish to conjecture on whether or not there has been an evolution in the golf swing, comparing the swings from various eras.

Are there significant changes? If so, how are they applicable to your pupils?

James Braid

George Duncan

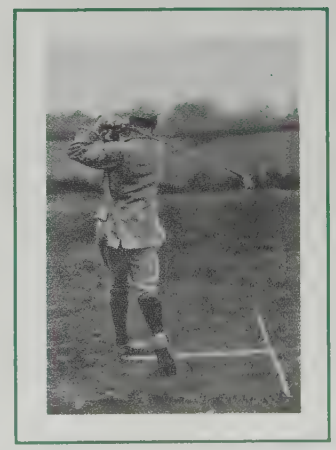




H.H. Hilton

Willie Park

J.H. Taylor



Harry Vardon

Cecil Leitch

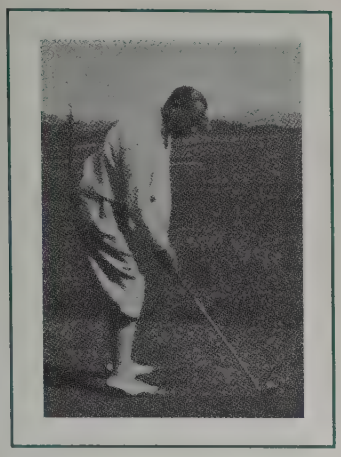
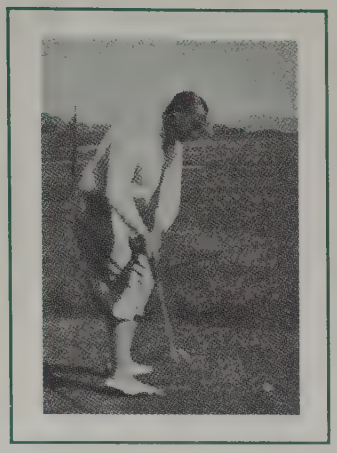
Lady Margaret Scott

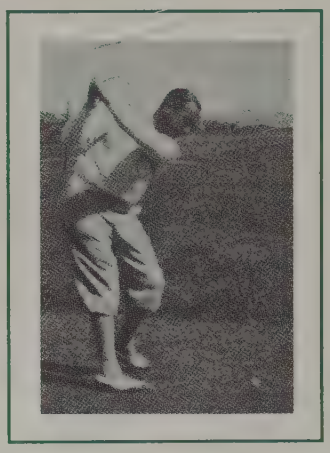
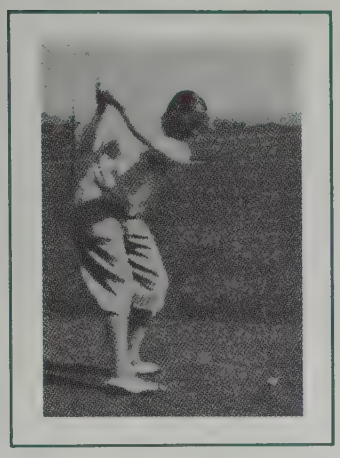
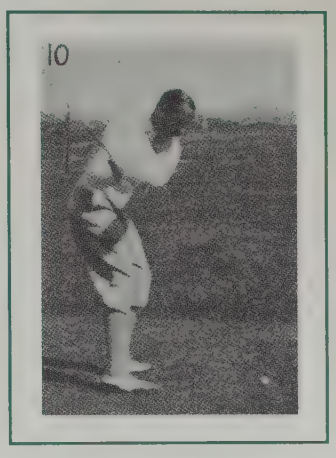
*Jim Barnes**

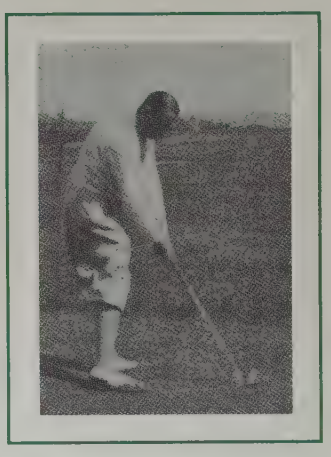
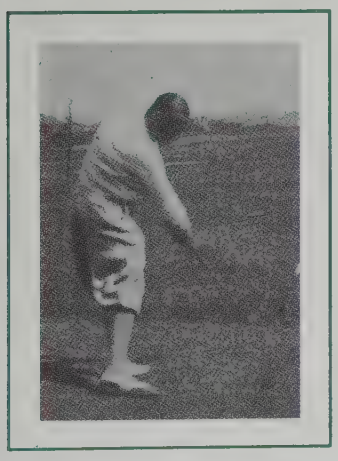
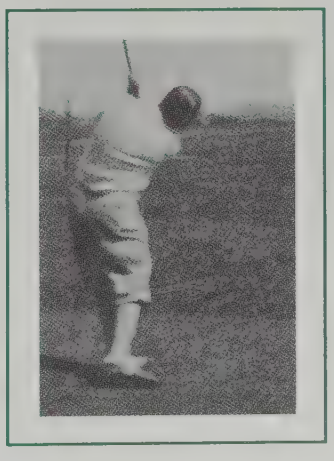
*First American PGA Champion - 1916

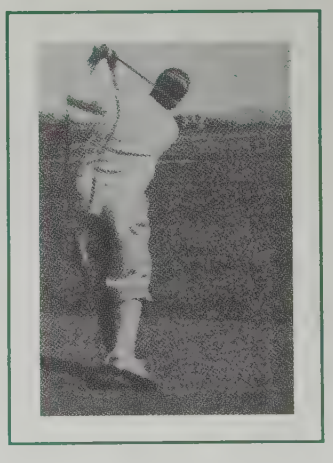
Bobby Jones

Walter Hagen

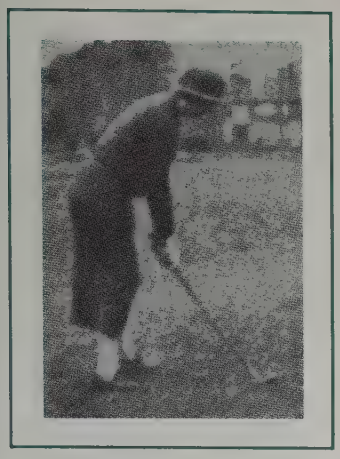




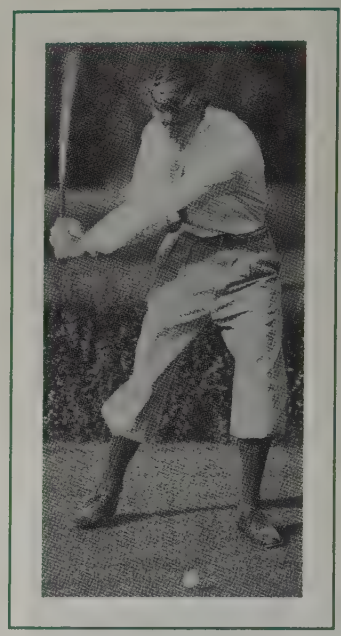


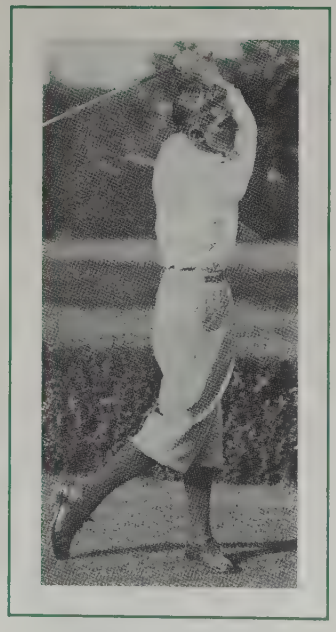
Gene Sarazen

Joyce Wethered

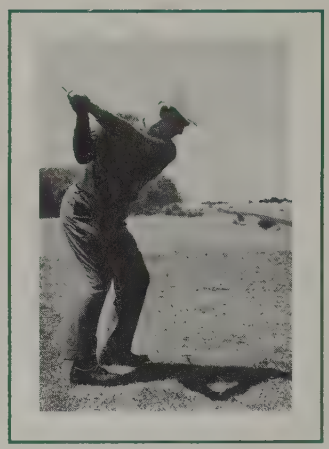
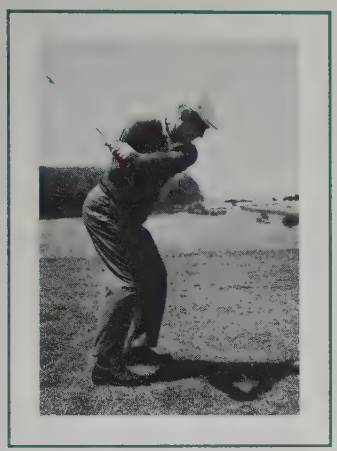
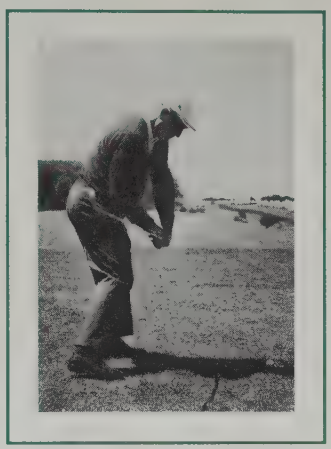


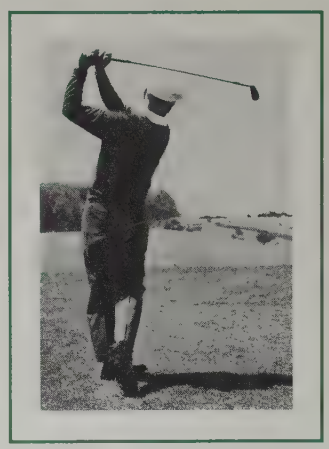
Tommy Armour





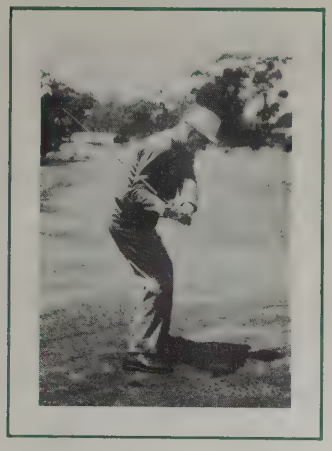
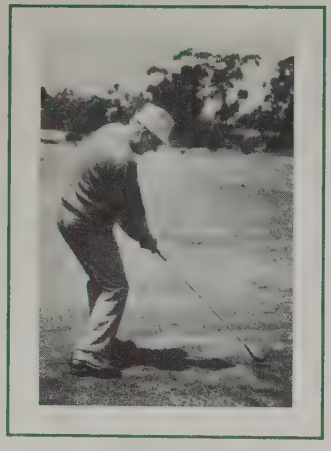
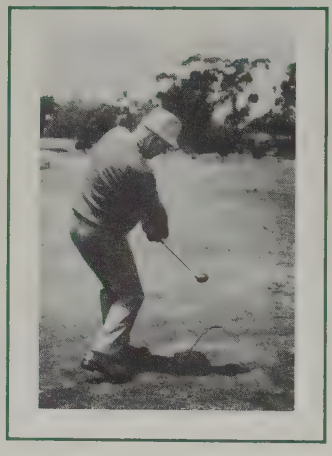
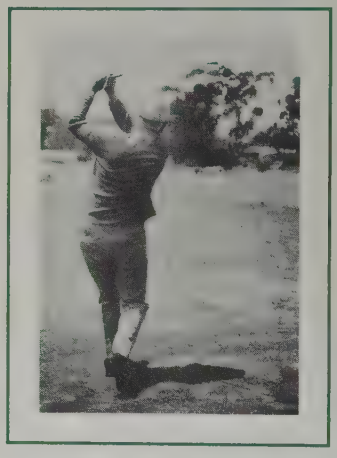
Ben Hogan



Photos by Chuck Brenkus

Byron Nelson

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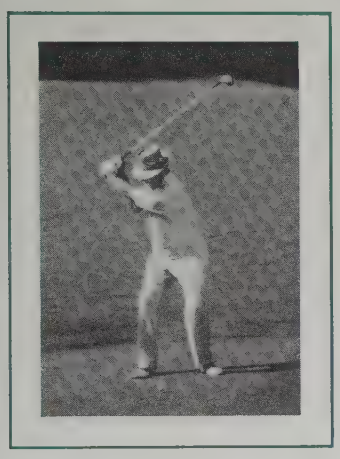
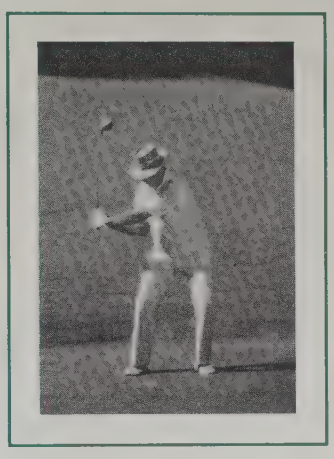
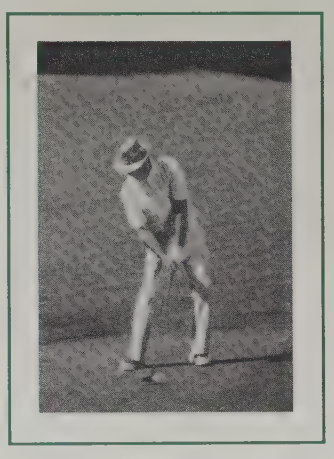
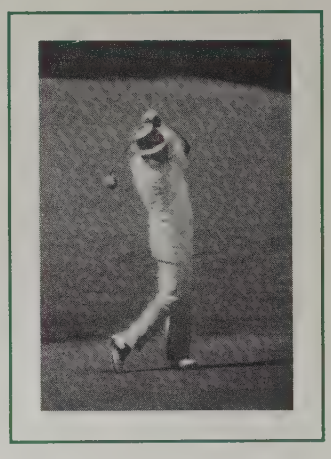
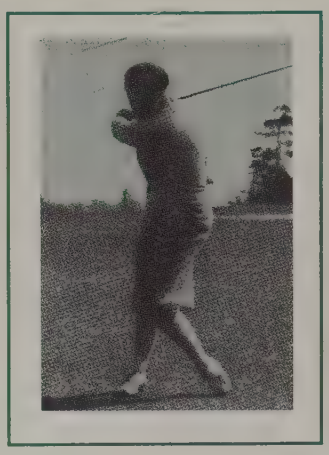
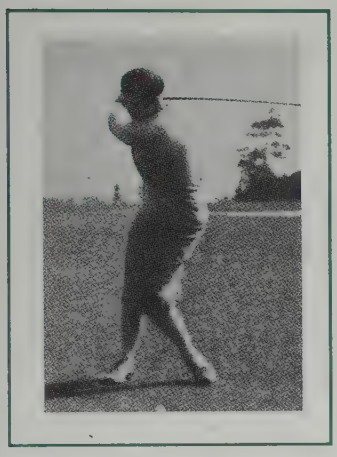
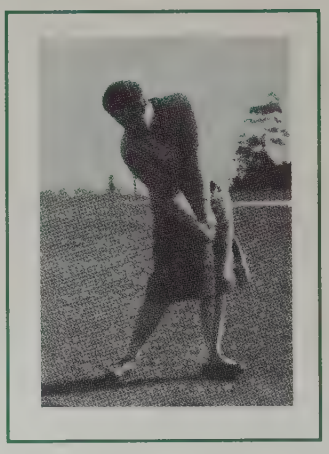
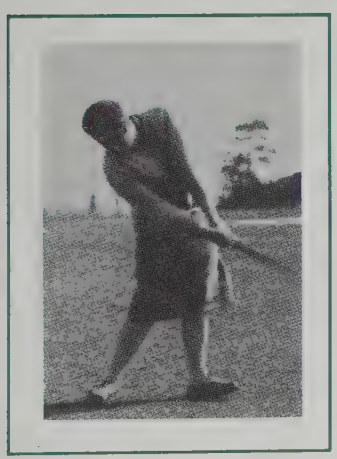
Sam Snead

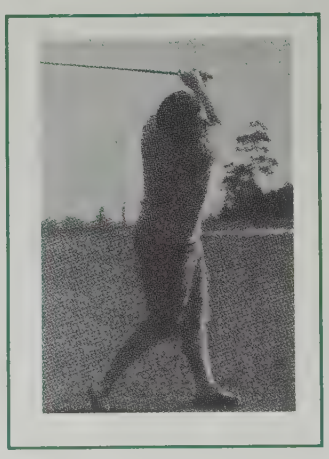





Patty Berg

Helen Hicks

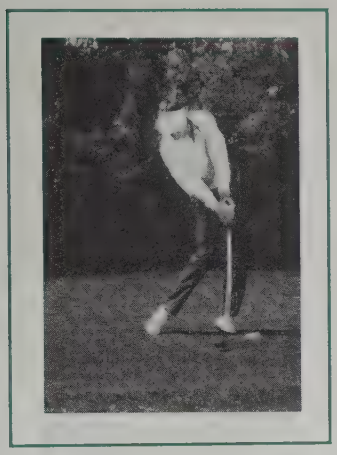



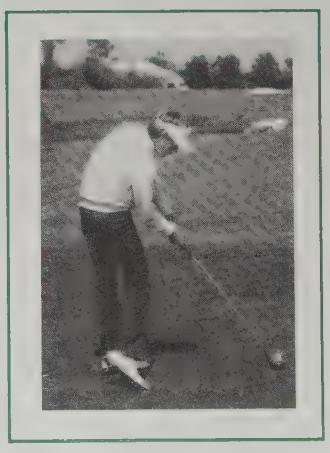





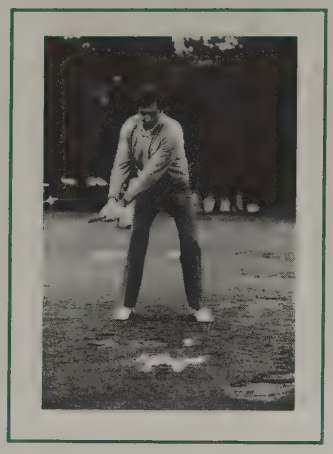
Isao Aoki

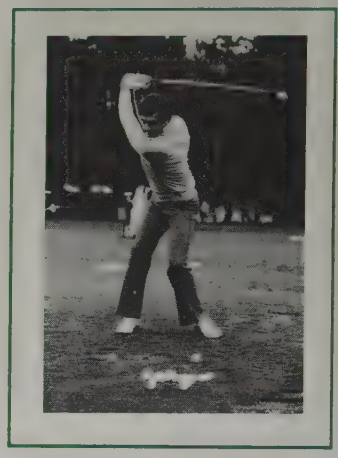
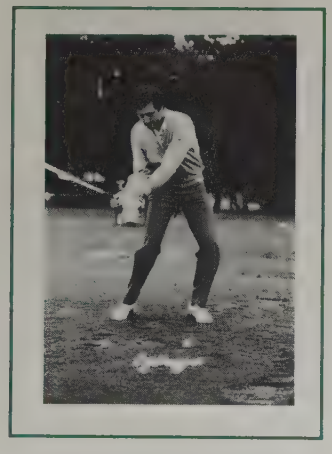
Paul Azinger

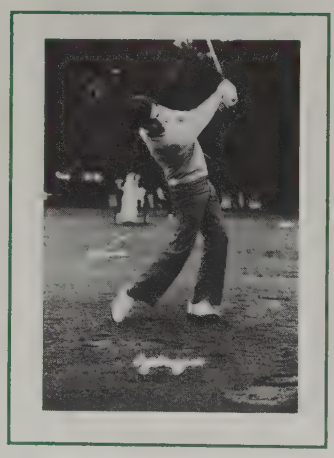
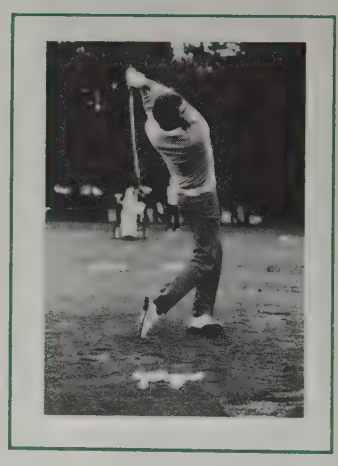




Seve Ballesteros



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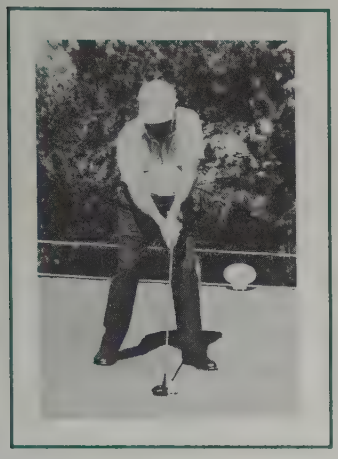

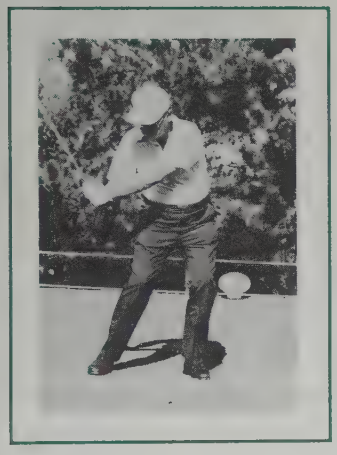
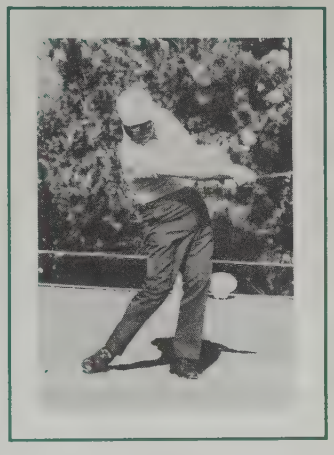
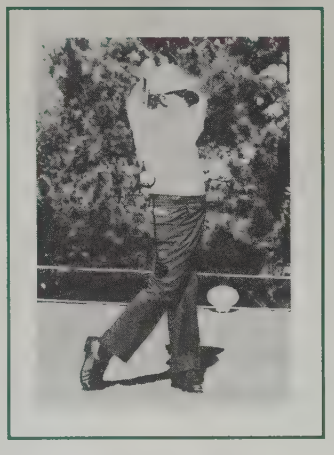

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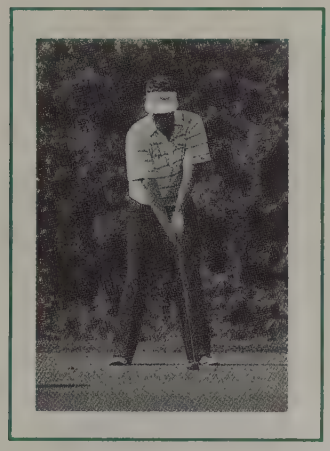
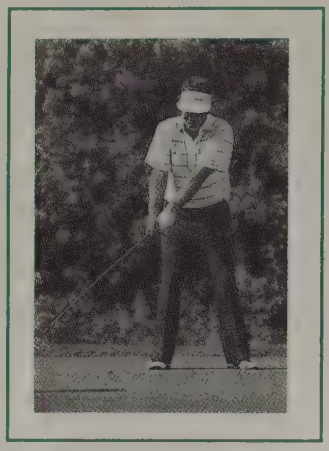
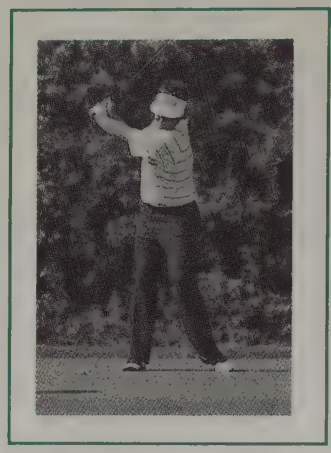
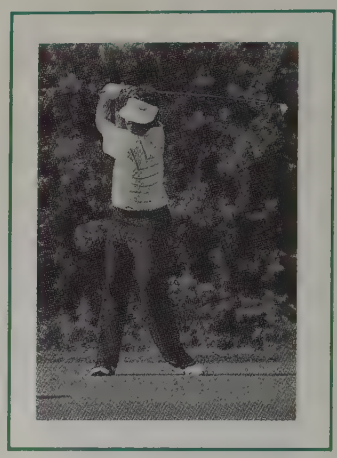
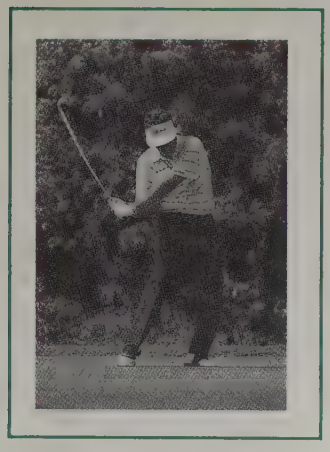
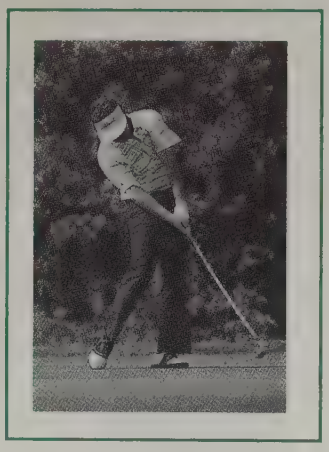
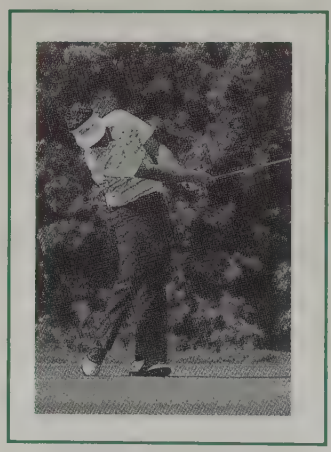
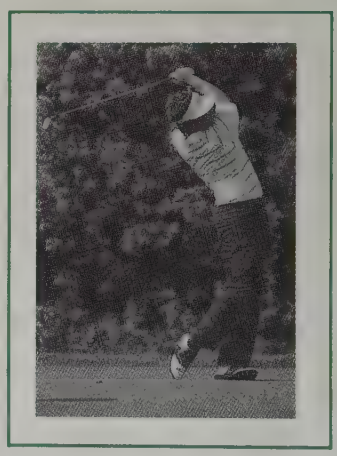
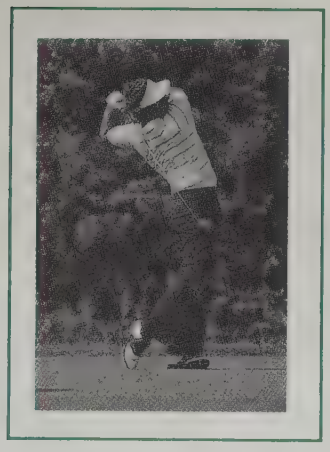
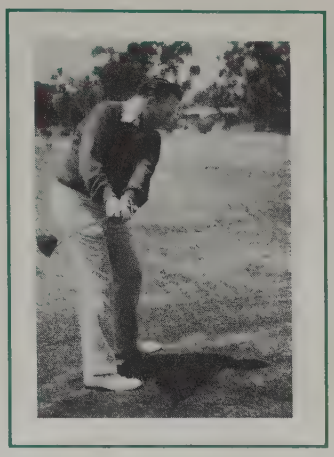
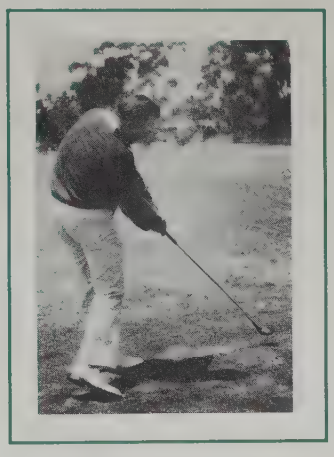
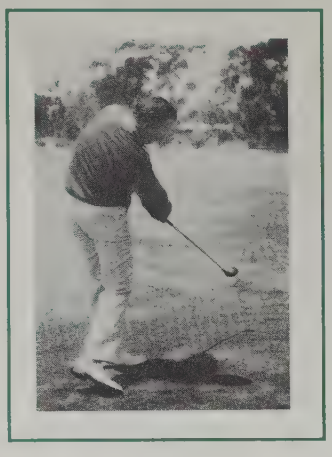










Billy Casper



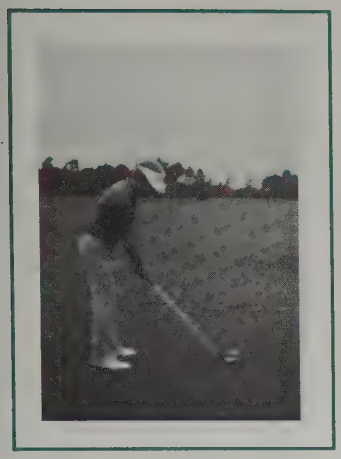



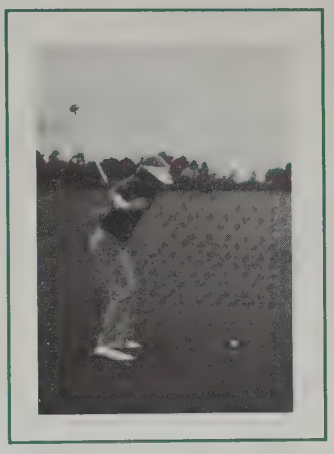
Photos by Chuck Brenkus

Bob Charles

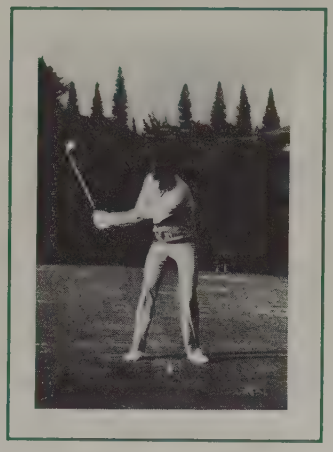
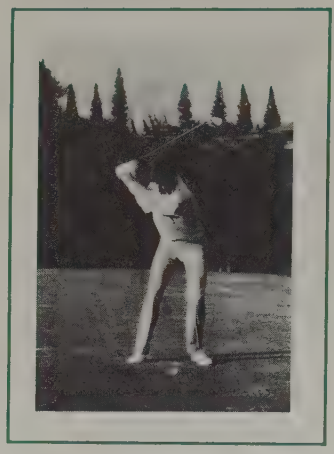
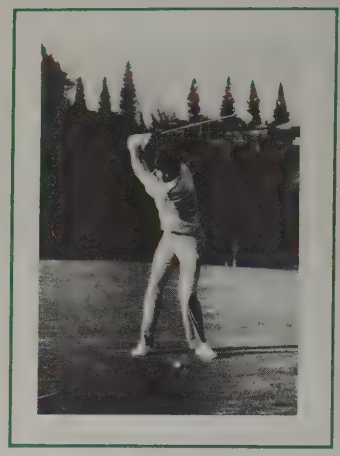
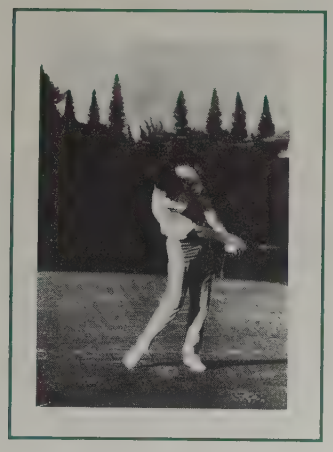
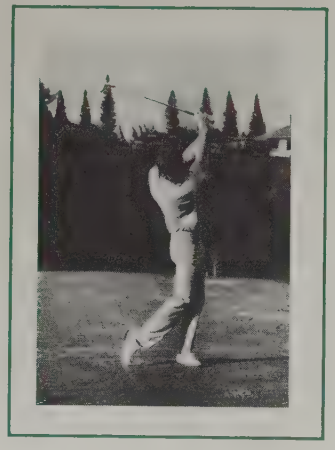
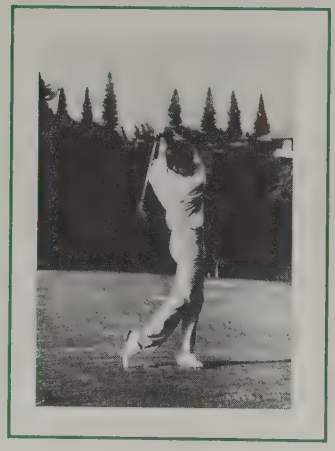
Photos by Chuck Brenkus

Ben Crenshaw





Nick Faldo

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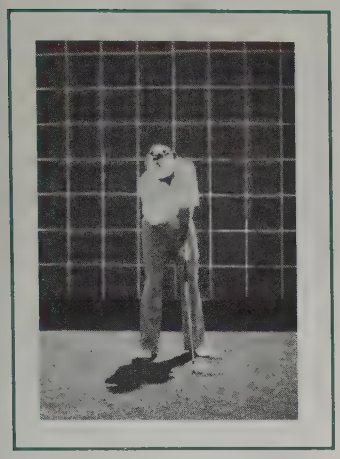
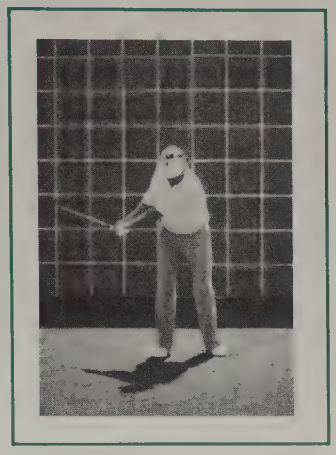
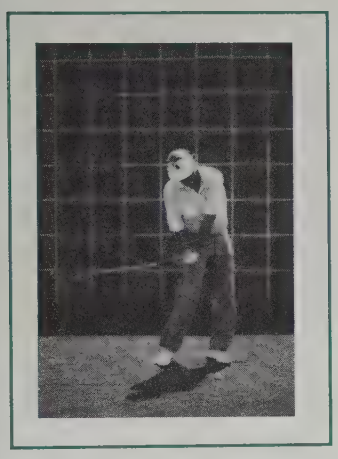
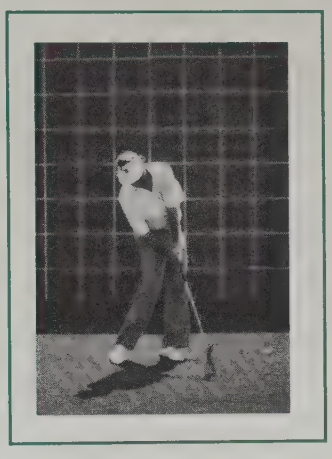
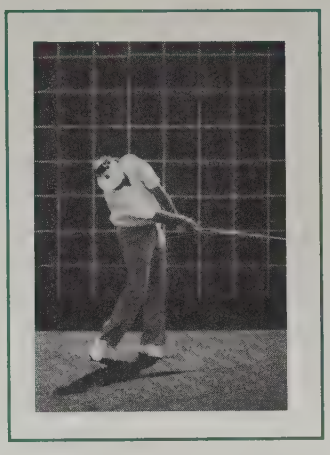
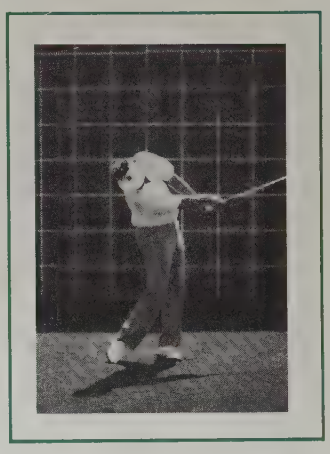
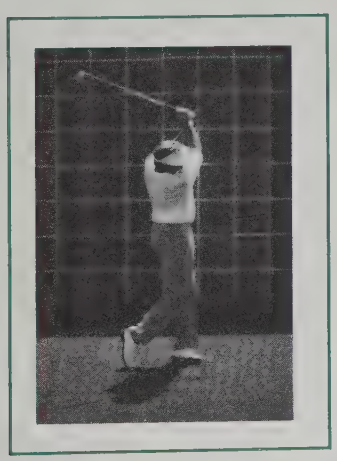
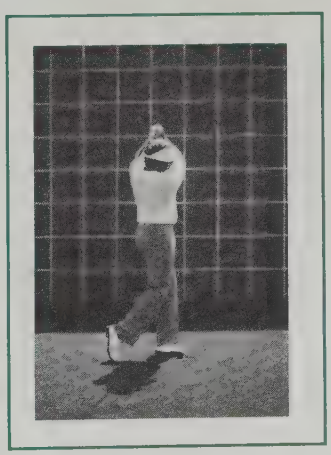
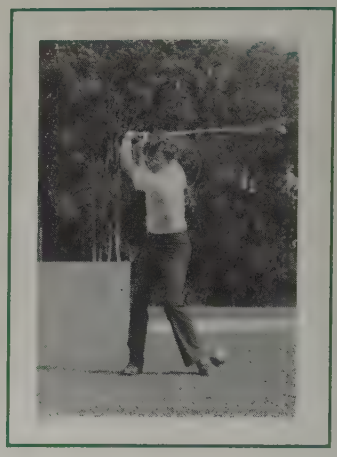



Hale Irwin



Tom Kite

Gene Littler

Photos by Chuck Brenkus

Davis Love III

Jack Nicklaus

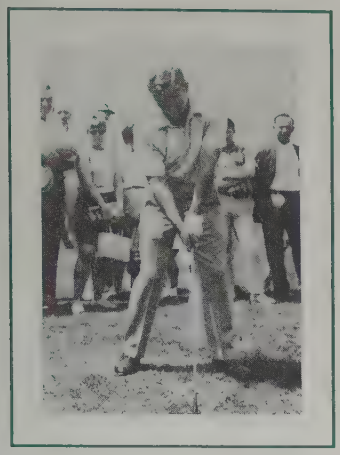
Photos by Chuck Brenkus

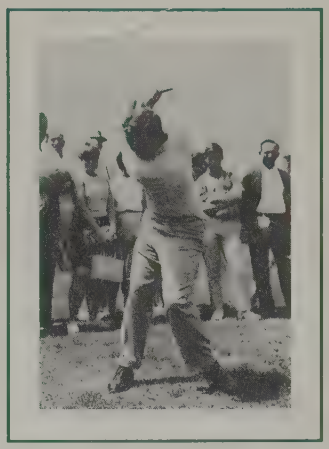
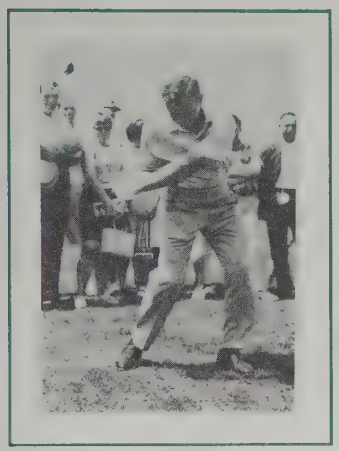
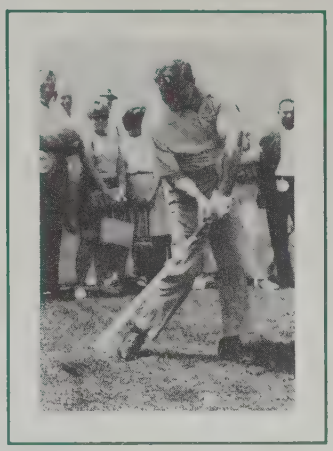
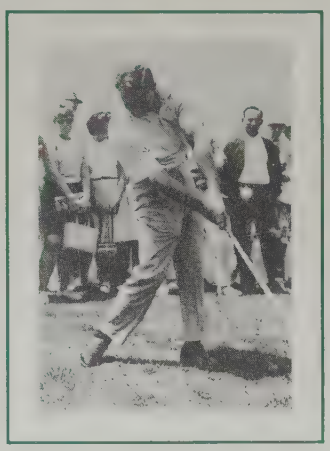
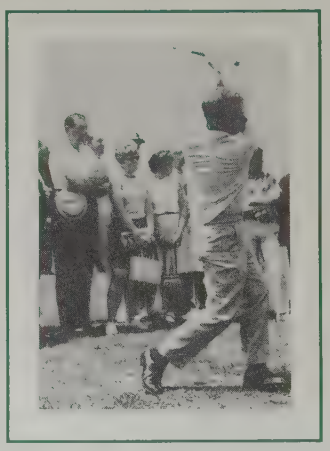
Greg Norman

Charley Owens *

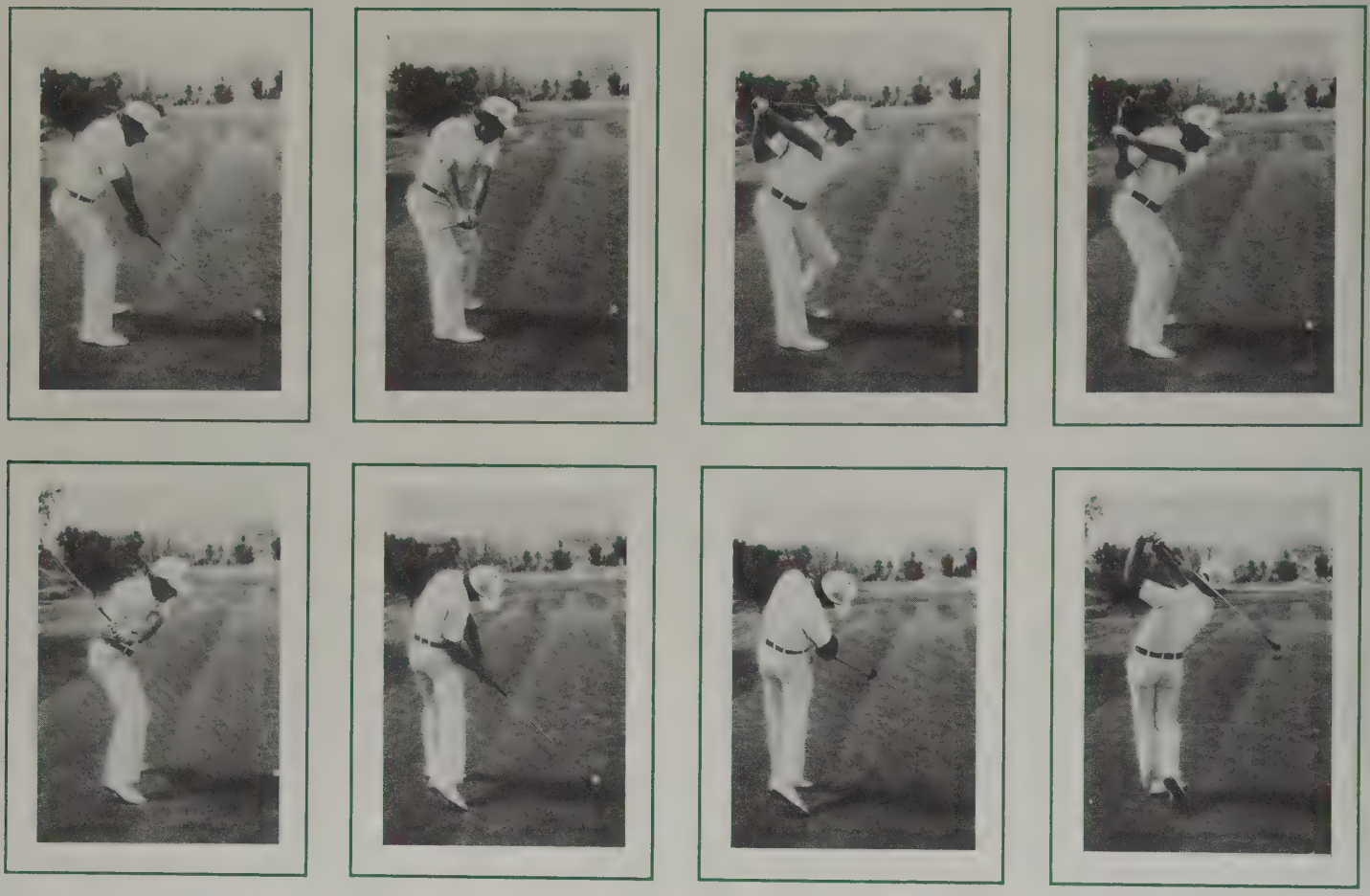
* Cross handed grip

Arnold Palmer



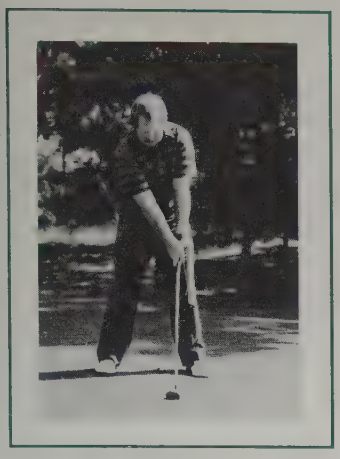
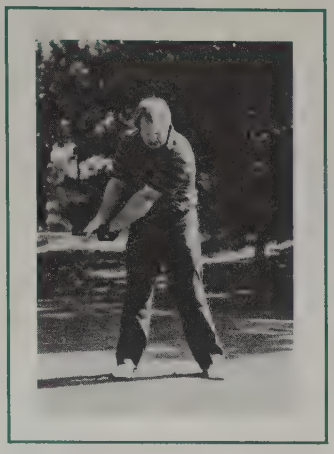
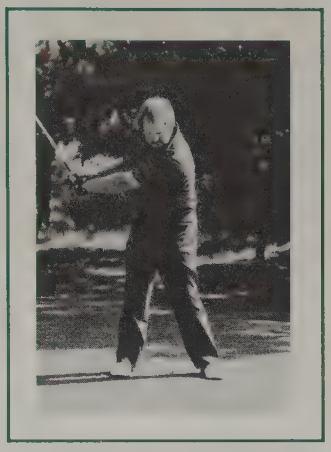
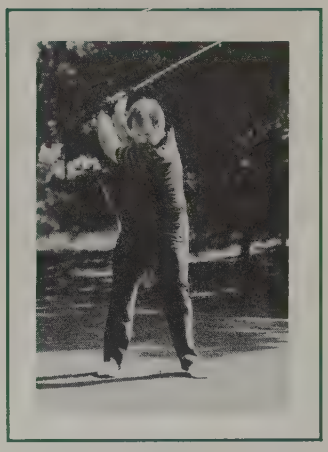
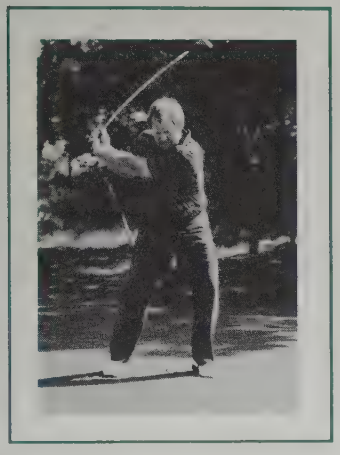
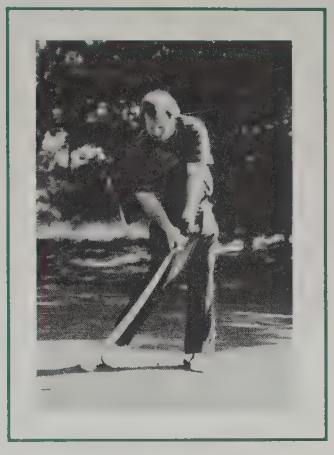
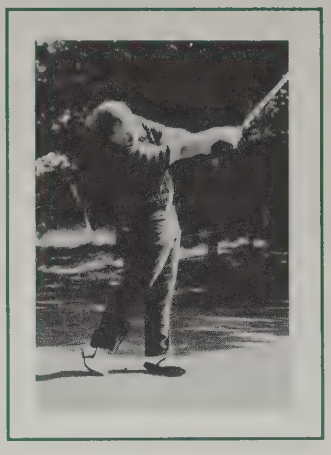
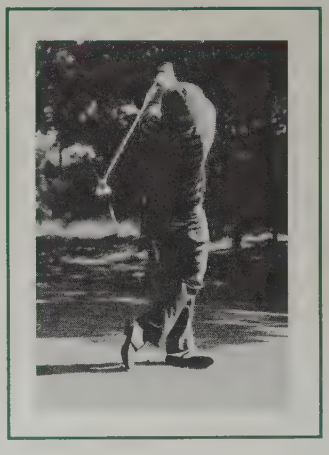






Gary Player



Photos by Chuck Brenkus

Craig Stadler

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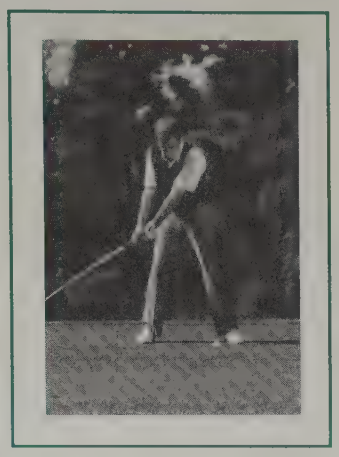

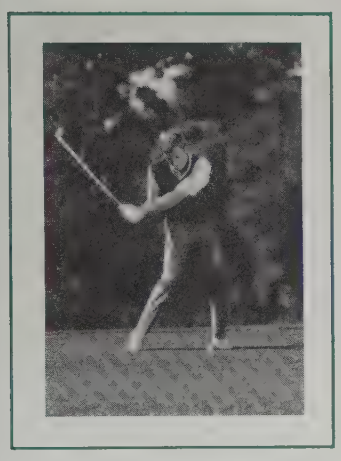
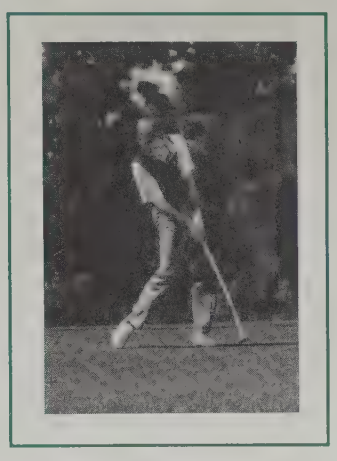

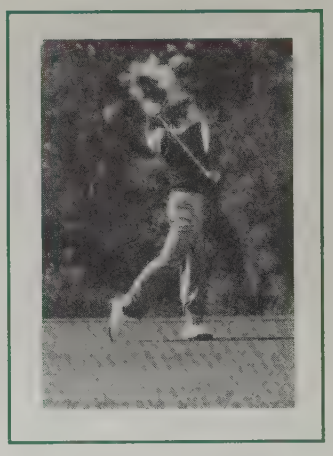

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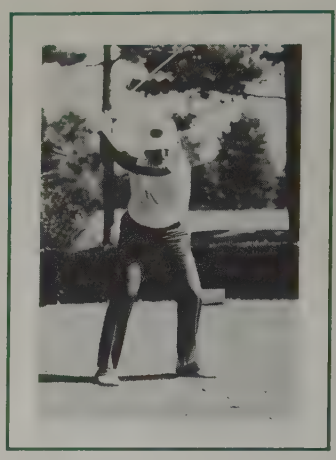
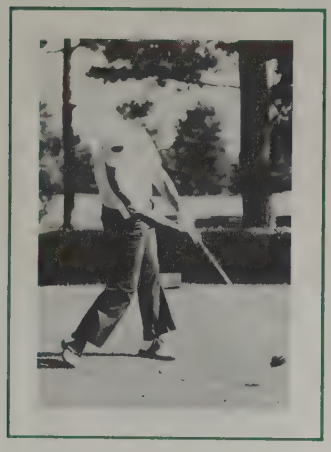

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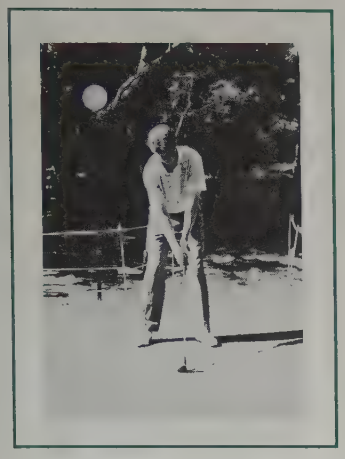
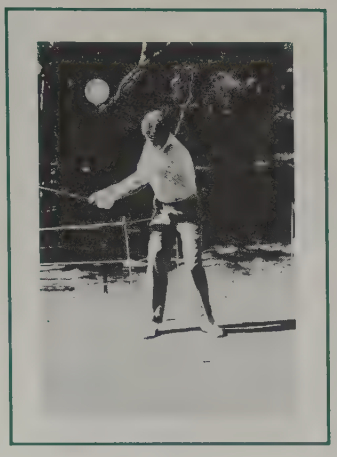
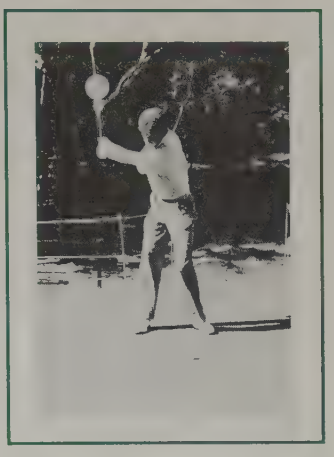

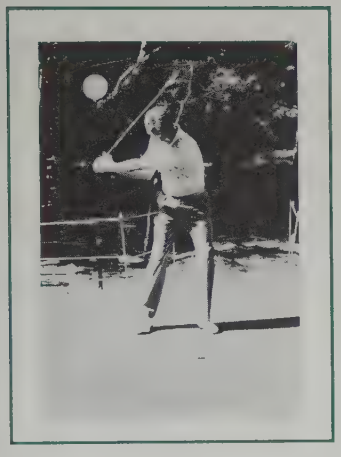
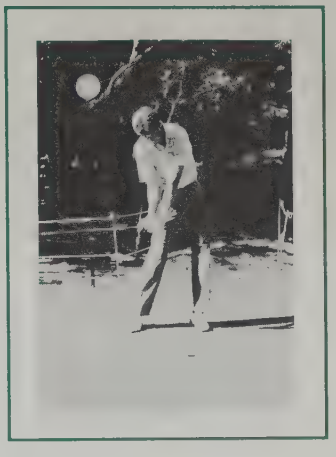
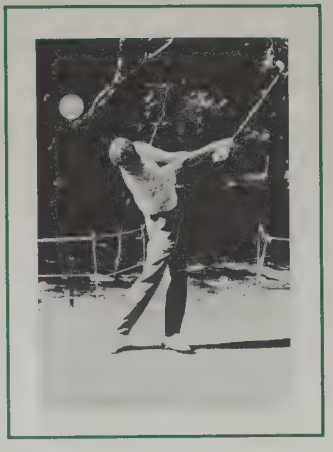
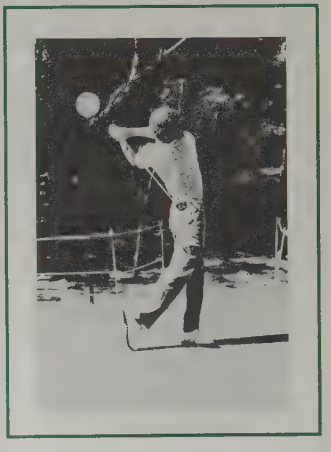

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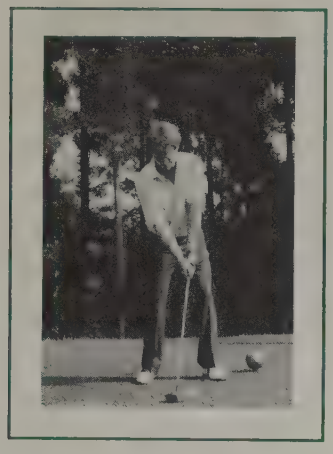

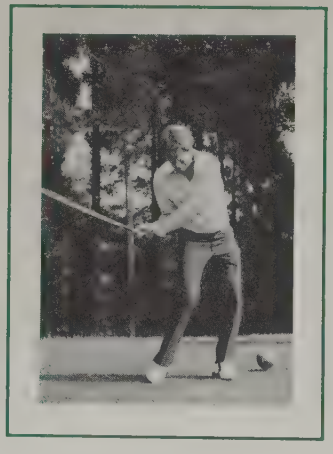
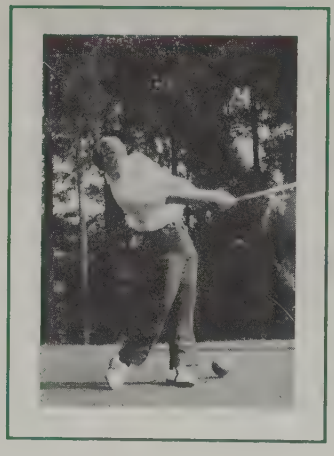

Amy Alcott

Pat Bradley

Beth Daniel

Nancy Lopez

Patty Sheehan

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Kathy Whitworth

Mickey Wright

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Appendix 1-A

GOLF'S INCEPTION A DECEPTION?

by Nick Poppa, originally published in the Ohio Golfer Magazine

Historians concede that the origin of golf is not conclusive. Researchers tend to categorize their findings into two phases.

One, there's this centuries-old pastime consisting of the striking of a small, hard object with a stick of sorts, toward a designated spot by two or more individuals in an open outdoor area.

Two, there were the more formalized recreational and competitive activities with clubs and balls over specific courses with primitively designated tees and greens.

Golf's precise origin can be traced to the first category, by students of the game, to disputable beginnings. Judge for yourself.

- Roman soldiers, in Caesar's time, played "Paganica" using curved wooden sticks to hit feather-filled leather balls. The soldiers overran Europe and occupied parts of England and Scotland until the Fourth Century. It is believed the invaders' game of Paganica rubbed off on the natives and became the pattern later for golf in Scotland, England, Belguim, France and Holland.
- Scottish historians generally agree on 1100 as the year their "golf" was born and became their "invention." Robert Browning in his "History of Golf" maintains the "Scots" devised (golf's) essential features...the combination of hitting for distance with the final nicety of approach to an exiguous mark, and the independent progress of each player with his own ball, free from interference by his adversary...
- A game similar to Paganica was played during the reign of Edward III and was called "Cambuca." It was banned in 1363 along with all games so that men would have more time to practice archery for military defense.
- France had a game called "jeu de mail" that was also known as "touchstone." It was played in open country within a designated area. The player who took the fewest strokes to reach the target about ½ mile along a road was the winner.
- Art gallery archives contain a print of Araucanos Indians playing "El Sueca" in Chile with clubs and balls back in the 16th Century.
- Yet still another contention is that golf began its history in Holland in the 13th Century in Loenen where they had four hotels. Dutch artists of the 17th and 18th Centuries depicted scenes, both on ice and land, of players hitting balls toward targets in a game they called "het kolven." Dutch "kolf" has often been mentioned in historical references.
- As far back as five centuries ago, golf was popular in Scotland. Sometimes too much so. King James II, in 1457, was concerned about the defense of his country. He wanted more time to be spent practicing archery and issued this edict: "....that fute-ball and golfe be utterly cryed downe, and not be used..." Golf was considered a threat to national security. Compulsory archery practice was being ignored by golfers who became absorbed in a new pastime.
- The ban continued for about 50 years when, in 1503, King James IV married a daughter of King Henry VII and signed a treaty of peace with England. Golfers were allowed to resume. That also included King James, an avid golfer.
- This union between Scotland and England helped introduce golf to the latter. In 1513, Queen Catherine of Aragon wrote that she..."regretted that she would not often be hearing from her husband, King Henry VIII, but that all his subjects be very glad, I thank God, to be busy with Golfe for they take it for a pastime..." Almost a century passed before King James VI of Scotland succeeded to the throne of England as King James I and brought serious golf to England.

- Mary Queen of Scots was a golf addict. It spelled her doom. Either because she was seeking solace, or did not care (after the murder of her husband in 1567), she was seen playing golf a few days later. "A poor view" was taken of her golfing at such a time, according to historians.
- British royalty supported golf. Early House of Stuart monarchs all played. King James VII of Scotland and King James II of England were often on the links at Leith. King James VI was probably the first real promoter of "junior" golf. He considered golf "great recreation for the young." He encouraged his two sons, Prince Henry and Prince Charles, to golf. Later when the latter became King Charles I, he was in a match at Leith. Word reached him of an Irish Rebellion. Immediately, he left. Evidently he was losing at the time and some accused him of leaving in a hurry"...to save his half-crown (the bet) rather than his crown." Apparently his last golf round was at Shield Field outside the walls of Newcastle upon Tyne, where he was a prisoner.
- Royal participation in golf trailed off after the passing of the Stuarts, although Bonnie Prince Charlie was seen practicing while exiled in Italy just before the Jacobite Rebellion in 1745. Royal patronage bounced back in 1833 when King William IV bestowed the designation "Royal" on the Perth Golfing Society. The next year, he accepted the invitation to be the patron and subsequently designated "The Royal and Ancient Golf Club of St. Andrews."
- It was about this time when golf's transition from isolated individual encounters in Phase One to "club" atmospheres in Phase Two. Take your pick as to where and when the first "golf club" was organized.
- Royal Blackheath, instituted in 1608, lays claim to being the oldest golf club in the world. Evidence is lacking of any such club until well into the 1700s.
- Seniority is claimed by the Honourable Company of Edinburgh Golfers, which boasts of a 1744 start. For a few years prior to that, it was recorded that..."gentlemen of honor, skillful in the ancient and healthful exercise of Golf" had been playing on the five-hole links at Leith. To obtain formal recognition, they appealed to the Edinburgh Town Council, who gave them a silver club to use as an annual prize. They formed the Company, kept minutes from that day forward and compiled the oldest continuous record of any golf club in the world. Twenty years later, in 1764, Club rules were enacted, and competition was limited to members only.
- Historians have concluded that most of the early golf clubs were founded by Masons and the date of their beginning preceded only by a few years their formation as golf clubs. Records show that the foundation stone for Golf House at St. Andrews was laid by William St. Clair, Grandmaster Mason of Scotland. All members on hand were Masons and full Masonic honors were observed. The Royal Burgess Society of Edinburgh was formed in 1735, however there were no recorded minutes. Minutes are missing in several other beginnings, which indicated that Masonic affairs were secret and records were destroyed when the societies accepted golfers into their organization even though they were not Masons.
- There were only 10 golf clubs in the late 1700s. In 1818, the Old Manchester Club was founded. It was the oldest golf club outside Scotland, after Blackheath.
- The Calcutta Club was formed in India in 1829 and the Bombay Club in 1842. The Calcutta Club conducted the Amateur Championship of India, which became the oldest national championship outside the British Isles.
- Golf reached the west coast of Scotland at Prestwick in 1851. Earlier, golf was played in Great Britain on linksland along the eastern coasts of Scotland. Links were formed when the sea receded and left wild, undulating wastes of sand. The land had little agricultural use. It was usually remote from towns and provided the weather conditions that eventually provided challenges to the hardy pastime. One observer put it, "grass and hazards were already there; the ground had natural movement and fashioning...a course needed no great imagination or labor...From the beginning,

links provided classic settings...greatest courses lie on such land..." There were bunkers in abundance, many resulting from the digging for shells. Slightly raised areas were suitable for teeing grounds and greens. The Old Course at St. Andrews came about "naturally." Nature was its only architect. Its design did not require the hand of man and this great links golf course has survived the test of centuries except for an occasional alteration as equipment became more sophisticated and efficient.

- At St. Andrews, the Old Course had 22 holes — 11 out, 11 back. In 1764, William St. Clair used 121 strokes for a round. It was then decided to convert the first four holes to two. The same fairways and greens were used going out and back, the round thus was cut to 18-holes as is the case with most courses today. At 64 years of age, St. Clair then scored a 99 over the 18-holes. Breaking of 100 was an extraordinary accomplishment. In 1767, James Durham won the Silver Club at St. Andrews with 94 — a score that held up for 86 years, probably the longest-standing record of all time. J.C. Stewart broke it in 1853 when he won the King William IV Medal with a 90.
- In 1856, the first golf club on the European continent was formed at Pau, France.
- The oldest seaside course outside Scotland, called the Royal North Devon Course, opened in 1864 at Westward Ho.
- At one time, golf almost disappeared. In Holland, it vanished for more than 300 years. Golf declined in the 1500s. But after years of sporadic warfare, in 1603 the crown heads of Scotland and England were united, and King James VI moved his palace to London. Golfing went along and the growth of golf resumed.
- Holland's further claim to golf's origination is evidenced by the discovery of a wooden ball about 2-inches in diameter in the mud of Amsterdam harbour where it was buried under a pile driven into silt to support a building. Also uncovered were metal club heads at a city dump.
- Which brings to the fore the story of clubs and balls used by golf's pioneers. Records show that the first clubs made specifically for golf were by a bow-maker in Perth who was hired to make clubs for King James IV. The oldest clubs probably are preserved at Troon, Scotland. A set of six wooden clubs and two irons was found in Hull, along with a 1741 Yorkshire news clipping which described them. Clubs were not numbered as now. One of the oldest wooden sets at St. Andrews includes a "play club," "long spoon," "mid-spoon," "short spoon," "baffling spoon," "driving putter" and "putter." Irons developed later and were called "cleeks," "track irons" (for hitting balls out of railway lines), "rut irons" and "play clubs."
- Steel-shafted clubs were tried before World War I but the Royal and Ancient Rules Committee frowned upon them as being too radical a departure from the original wooden shafts. Only after April, 1924, did the USGA permit metal shafts in all its competitions. However, Bobby Jones and many others continued to use wooden shafts and in 1930 he scored his Grand Slam with handmade hickory shafts. In May, 1930, the R & A finally fell in line and approved steel shafts.
- Golf balls have undergone an even more spectacular transition. First there were stones and rocks, then round wooden objects before someone stuffed feathers into leather spheres back in the dark ages of golf. Leather usually was untanned bull's hide stuffed with about a top hat filled with feathers. On dry days, a feathery carried upwards to 200 yards but it cut easily. It was the standard golf ball until the 1840s. By 1848, the feathery was doomed by the "gutta-percha" — a rubbery substance, hand-molded into a round sphere the size of today's ball. It outdistanced the feathery, cost about a fourth less, rolled more truly on greens, but did not fly as well until dimples were developed.
- A Cleveland man, Coburn Haskell, is credited with revolutionizing the game. He came up with a ball that was made up of thin rubber windings around a solid core. Its popularity soared mostly because it flew about 25 yards farther and putted more

accurately. It sealed the doom of the gutta-percha in 1901 when Walter Travis used the Haskell to win the U.S. Amateur Championship.

- Willie Dunn was the first professional golfer in England at Blackheath in 1851.
- To understand how historical references can be deceptive, court records at Fort Orange in Albany refer to fines being levied for "playing golf in the streets" as early as 1657. But can you call this street game "golf?"
- During the Revolutionary War, it was reported that Scottish officers played golf in America. Before the end of the 18th Century, there were golf clubs in South Carolina and Savannah, Ga. Historians question the existence of "golf" among members who might have used the name of golf for their dining clubs simply for the sake of tradition.
- In 1888, a Scotsman, John Reid, set up a three-hole golf course in a cow pasture near Yonkers, NY, with several friends. It was called St. Andrews. He was not an enthusiastic pioneer because he opposed moving to a more spacious site and he objected to any increase in club membership. However, in four years, membership increased to 13, the course expanded to six holes and later had to be relocated in a nearby apple orchard where the golfers became known as the "Apple Tree Gang." In its present location at Mt. Hope it became an 18-hole course.
- It was on Long Island where American golf received its greatest impetus. Fabled Scottish Pro Willie Dunn was engaged to build a 12-hole course at Shinnecock Hills.* An imposing clubhouse was designed by noted architect, Stanford White. In 1891, Shinnecock became the first U.S. golf club to have a clubhouse; first to be incorporated, and first to have a waiting list. And it is reputed to be the first American golf course that actually looked like a golf course.

*Note: Subsequent research attributes the design of Shinnecock to Willie Davis, who was the professional at Royal Montreal in 1881, making him the first professional to come to North America.

Appendix 1-B

IMPORTANT DATES*

by
Ian Morrisson
Hamlyn's Encyclopedia of Golf
Twickenham, England, 1986

1457	Golf was first mentioned in a Scottish Act of Parliament which discouraged the playing of the sport because of the need for archery practice.
1744	The first golf club came into existence when the Gentlemen Golfers of Edinburgh (later the Honourable Company of Edinburgh Golfers) was formed. They drew up the first set of rules for the game.
1754	The Royal and Ancient Club was established as the Society of St. Andrews Golfers.
1759	Stroke-play first mentioned. Previously all golf had consisted of matches.
1779	Golf is believed to have been first played in the United States, near New York.
1811	The first women's golf tournament was organized at Musselburgh on 9 January for the town's 'fishwives.'
1818	The Edinburgh Burgess Golfing Society met the Bruntsfield Links Club at Bruntsfield on 4 June in the first interclub match.
1829	The first golf club outside Britain was founded at Calcutta, India. It later became the Royal Calcutta Club.
1833	Perth became the first golf club to attain 'royal' status, when the title was bestowed upon it by William IV.
1834	The Royal and Ancient Club was granted its name.
1848	The gutta-percha (gutty) ball was introduced.
1856	The first European course outside Britain opened at Pau, France.
1857	H.B. Farnie published *The Golfer's Manual,* the first golfing handbook.
1860	Willie Park won the first British Open, at Prestwick.
1867	The first women's golf club was founded at St. Andrews.
1893	The Ladies' Golf Union was formed. The first Ladies' Amateur Championship, at Lytham, was won by Lady Margaret Scott.
1894	John Taylor won the first British Open to be held in England, at Sandwich.
1894	The United States Golf Association was formed.
1895	The first U.S. Open was won by Horace Rawlins at Newport, Rhode Island.
1895	The first U.S. Amateur Championship, also held at Newport, Rhode Island, was won by Charles Blair MacDonald.
1898	The rubber-cored ball was invented by Coburn Haskell at Cleveland, Ohio.
1899	George F. Grant of Boston, Massachusetts, patented the golf tee.
1901	The Professional Golfers' Association (PGA) of Britain was founded in London.
1910	Arthur F. Knight of Schenectady, New York, patented the steel-shafted club.
1916	The Professional Golfers' Association of America (the U.S. PGA) was founded in New York.
1916	An Englishman, Jim Barnes, won the first U.S. PGA title at Siwanoy, New York.

1919	Control of the British Open and British Amateur championships was taken over by the Royal and Ancient Club.
1921	The first restrictions on the size of the golf ball were introduced.
1922	The United States won the first Walker Cup, at Long Island, New York.
1927	The United States won the first official Ryder Cup match, at Worcester, Massachusetts.
1932	The United States won the first Curtis Cup match, at Wentworth, England.
1934	Horton Smith won the first U.S. Masters at Augusta, Georgia.
1937	The European Golf Association was formed in Luxembourg.
1938	On 15 July, BBC television covered its first golf match at Roehampton in Southwest London.
1953	Argentina won the first Canada Cup (later World Cup).
1958	The first World Amateur Team Championship for the Eisenhower Trophy was held at St. Andrews and won by Australia, which beat the United States in a playoff.
1959	The Asian Circuit began in Hong Kong.
1960	The larger American Ball was used in a British tournament (at Wentworth) for the first time.
1964	The Women's World Amateur Team Championship for the Espirito Santo Trophy was inaugurated, in Paris, and won by the host nation.
1974	The use of the larger ball was made compulsory in the British Open for the first time.
1975	The Tournament Players' Division of the British PGA was formed.
1979	European golfers were allowed to take part in the Ryder Cup for the first time.

*Adapted from *The Hamlyn Encyclopedia of Golf.*

Appendix 1-C

A TRIBUTE TO PATTY BERG

Forward from *Golf for Women Illustrated,*
written by L.B. Icely, then president of Wilson & Company

It has been my pleasure to be associated with Patty Berg for nearly a decade.

When we first approached Patty with an offer to turn professional we ran into a somewhat unusual situation. Here was a girl who was not basically interested in how much money she could earn on the job but rather how much could she contribute toward the improvement and encouragement of women's golf.

Since accepting our offer, she has worked tirelessly toward achieving the highest standards possible for her sport.

Travelling an estimated 60,000 miles a year, Patty conducts clinics and plays exhibitions in clubs and colleges of every size and type.

Although she can spare little time to work on her own game, you can always find Patty's name right up among the leaders of the many tournaments in which she participates throughout the United States.

Typical of the real Patty Berg and indicative of her sincere love for women's golf was her promptness in turning the $500 cheque she received for winning the 1948 Women's Western Open over to the Women's Golf Association with the unassuming remark, "please accept this with my best wishes and use it in the manner you think will best promote junior golf among girls."

Editor's note:
This is a wonderful statement about a person who has been a tireless contributor to golf. The golf world could use more Patty Berg's.

Appendix 2-A

SAMPLE LIST OF DOCTORAL DISSERTATIONS PERTAINING TO GOLF INSTRUCTION

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Appendix 2-B

DEVELOPING A MODEL SWING

At the Grand Cypress Academy of Golf is a computer model of the ideal golf swing. Biomechanics expert Dr. Ralph Mann filmed and studied the swings of over 50 top PGA professionals (including Jack Nicklaus, Greg Norman and Arnold Palmer) to develop a model that can be adjusted to one's size and body type.

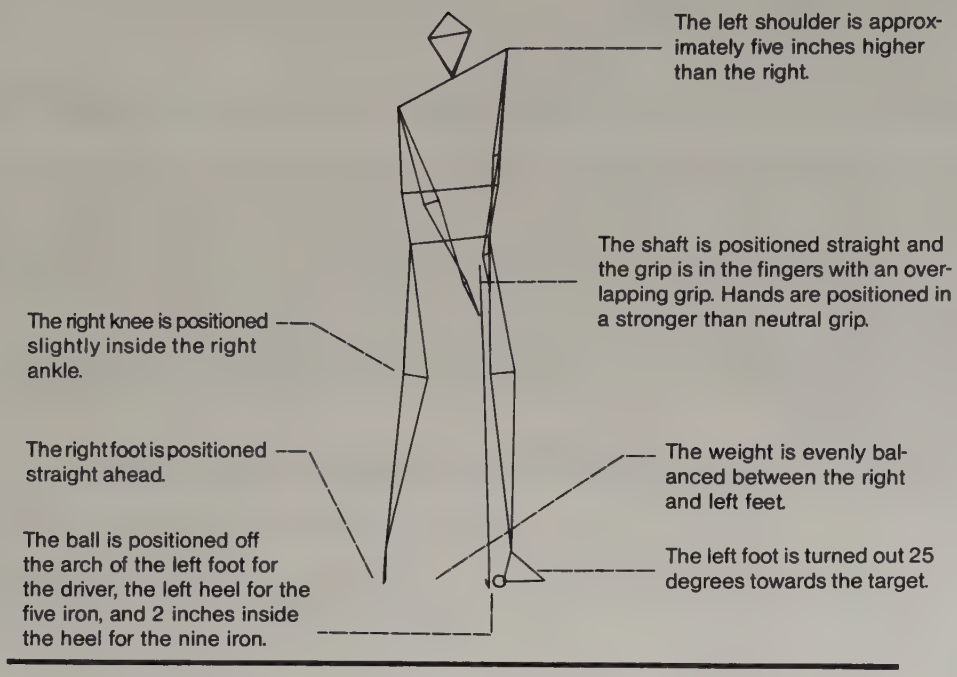
With the computer model, CompuSport also determines the correct lie, length, swing weight and shaft flex of equipment one needs to swing more toward his/her model.

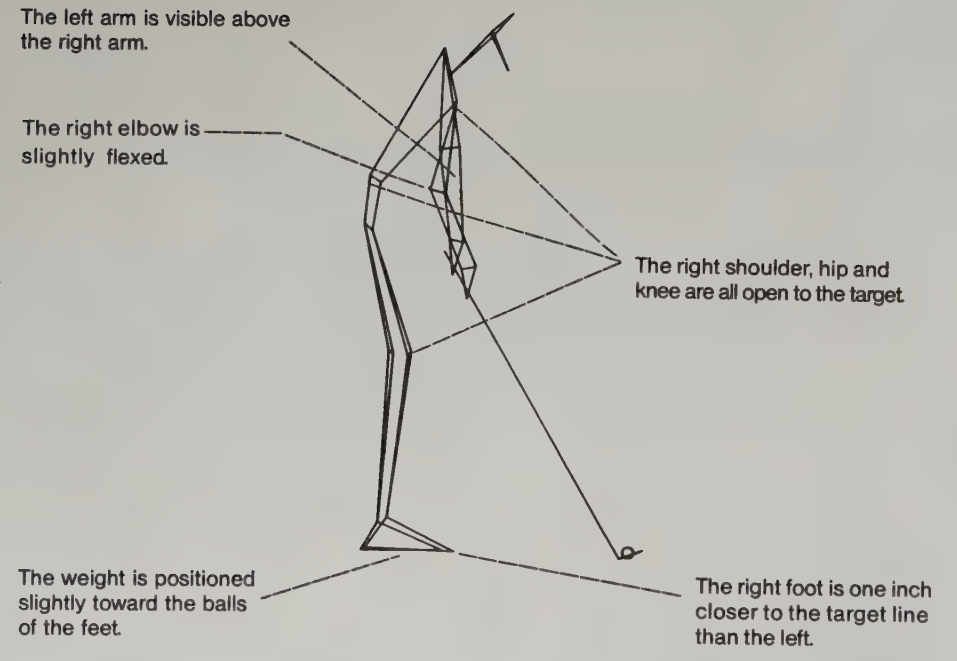
The work by Dr. Mann and PGA member Fred Griffin in conjunction with earlier research by Dr. Jim Suttie has contributed to the following stick figure diagrams and annotations. The thesis of this PGA manual is to allow for individuality under a workable system of principles. This would suggest that one composite golf swing may not be the answer for everyone. This is particularly true when trying to match players of high handicap talent with PGA Tour professionals. The work, however, that has been done by these researchers and professionals on identifying the characteristics of our top players is and will continue to be, a most useful contribution and source of information. Our thanks to them.

The CompuSport Model for a #5 iron is demonstrated following this text.

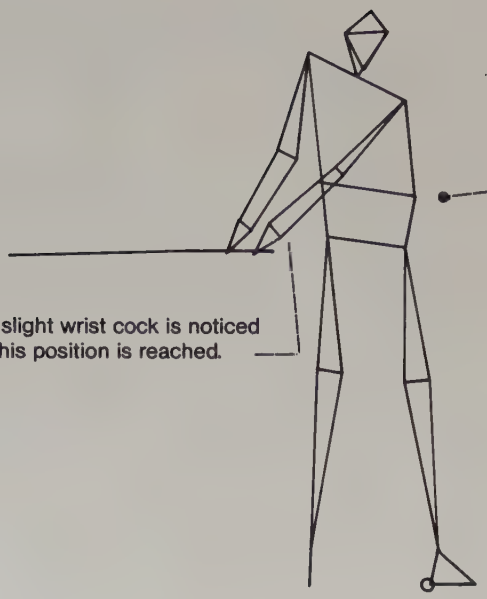
CompuSport Model

5 IRON - POSITION 1 © 1988 COMPUSPORT AT GC


The left shoulder is approximately five inches higher than the right.
The shaft is positioned straight and the grip is in the fingers with an overlapping grip. Hands are positioned in a stronger than neutral grip.
The right knee is positioned slightly inside the right ankle.
The right foot is positioned straight ahead.
The weight is evenly balanced between the right and left feet.
The ball is positioned off the arch of the left foot for the driver, the left heel for the five iron, and 2 inches inside the heel for the nine iron.
The left foot is turned out 25 degrees towards the target.

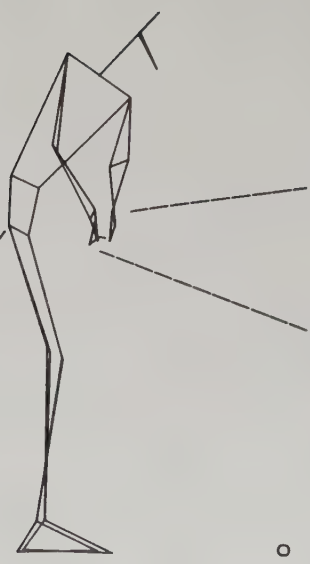

The left arm is visible above the right arm.
The right elbow is slightly flexed.
The right shoulder, hip and knee are all open to the target.
The weight is positioned slightly toward the balls of the feet.
The right foot is one inch closer to the target line than the left.

5 IRON - POSITION 2 © 1988 COMPUSPORT AT GC



The dot indicates where the left hip began at setup. At position 2 notice the shift the body has made away from that point. This assures the weight is transferred to the right side. All of the body shift away from the target is completed by the time the club reaches this position.

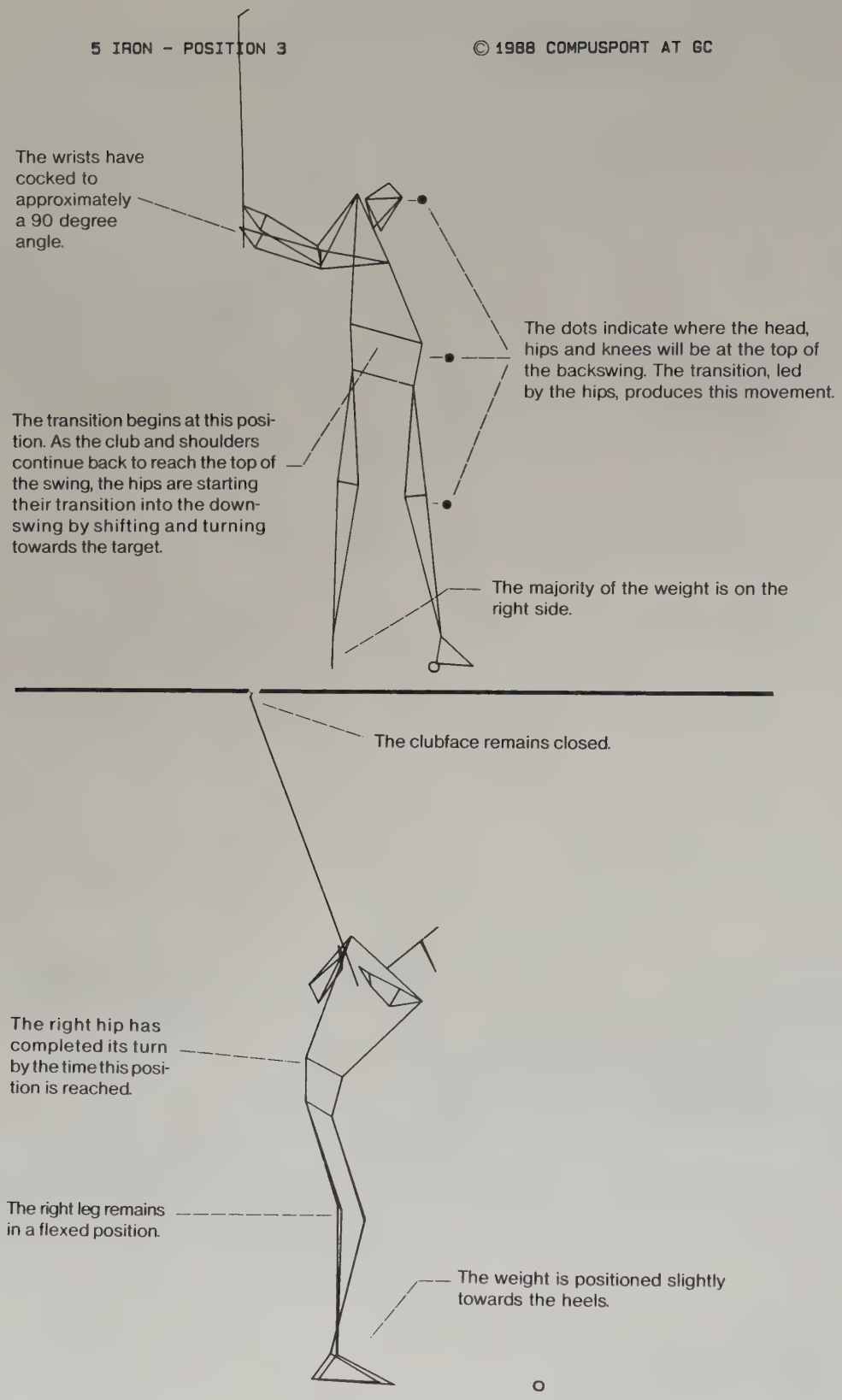
Only a slight wrist cock is noticed when this position is reached.

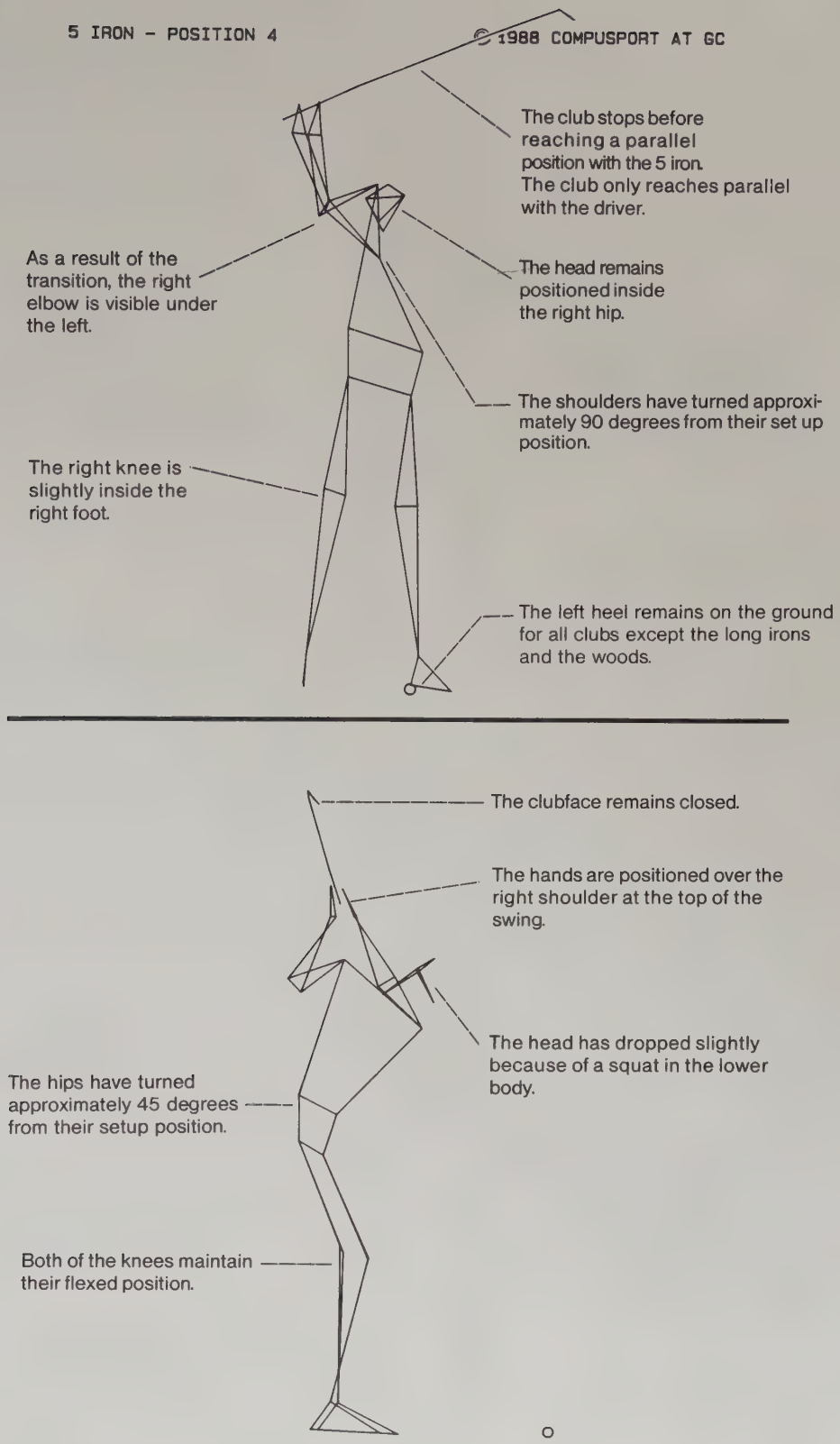


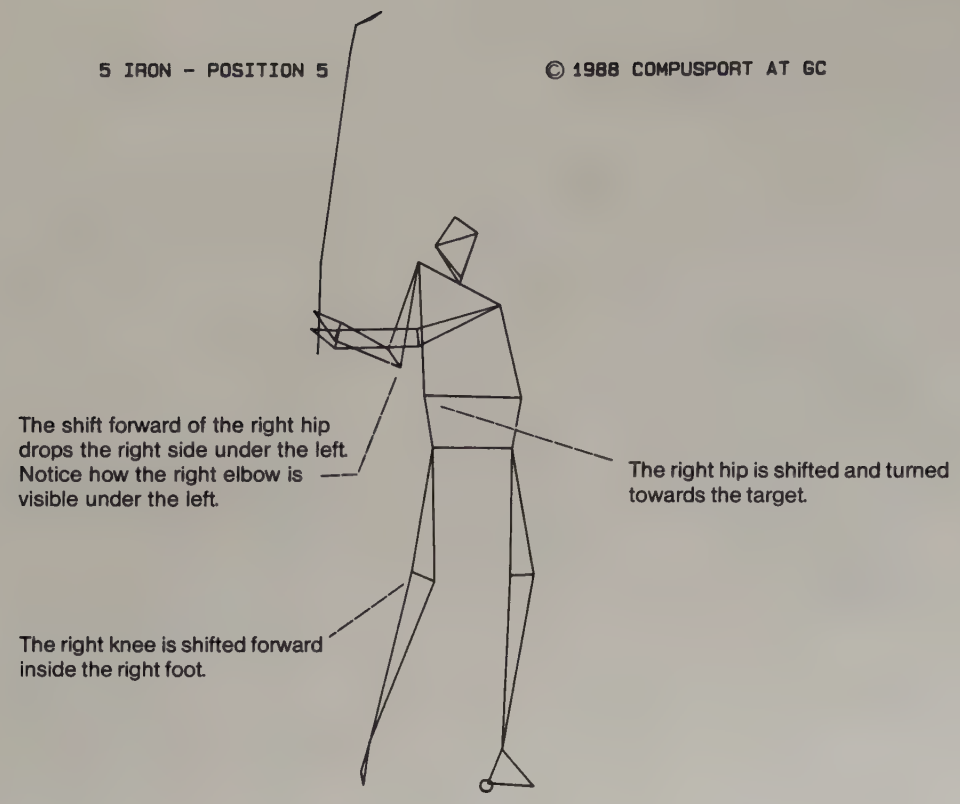
The arms travel straight back, parallel to the target line from position one to two.

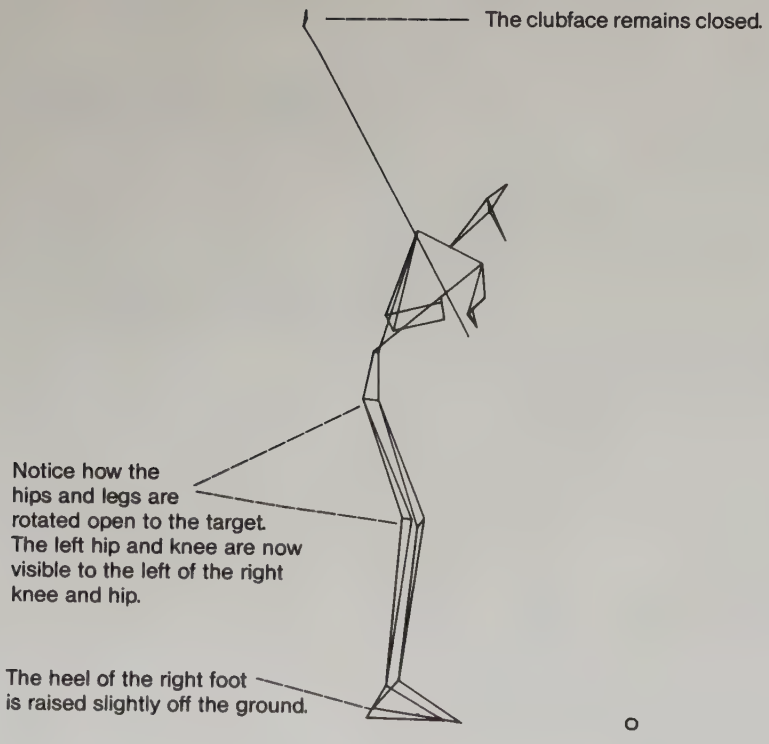
The right side turns only slightly away from the target line.

The clubface is slightly closed at this position.

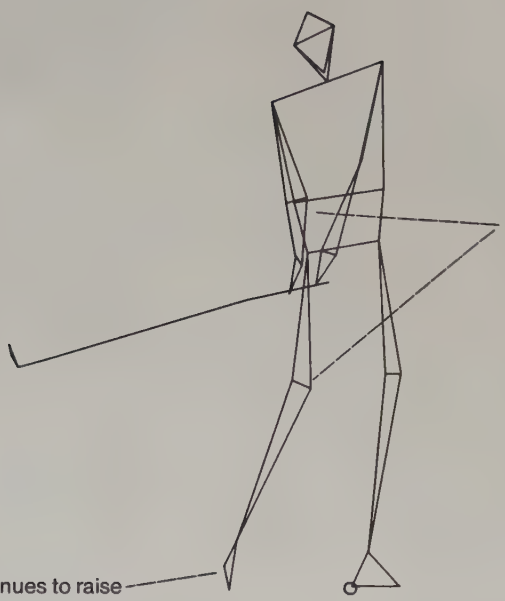

5 IRON - POSITION 3
© 1988 COMPUSPORT AT GC
The wrists have cocked to approximately a 90 degree angle.
The dots indicate where the head, hips and knees will be at the top of the backswing. The transition, led by the hips, produces this movement.
The transition begins at this position. As the club and shoulders continue back to reach the top of the swing, the hips are starting their transition into the downswing by shifting and turning towards the target.
The majority of the weight is on the right side.
The clubface remains closed.
The right hip has completed its turn by the time this position is reached.
The right leg remains in a flexed position.
The weight is positioned slightly towards the heels.

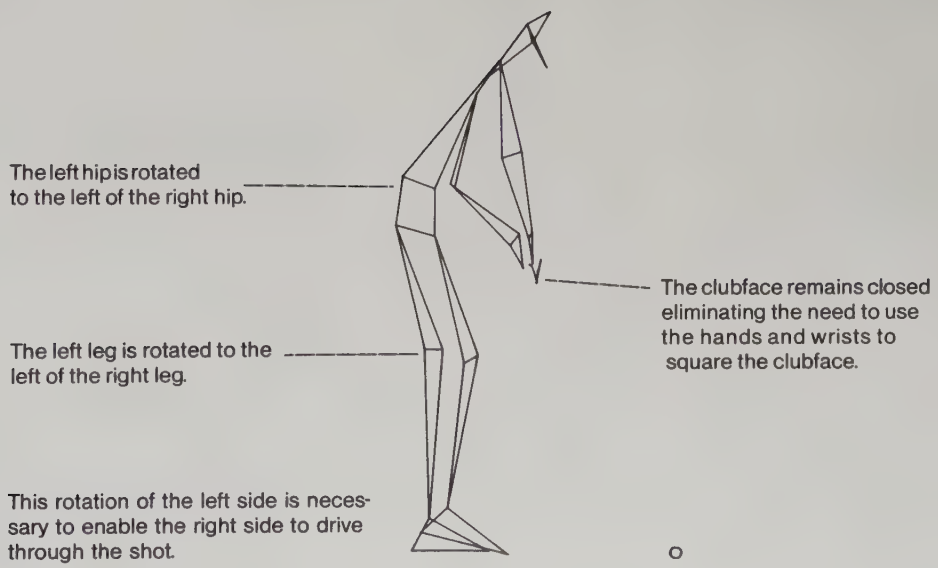

5 IRON - POSITION 4
©1988 COMPUSPORT AT GC
The club stops before reaching a parallel position with the 5 iron. The club only reaches parallel with the driver.
As a result of the transition, the right elbow is visible under the left.
The head remains positioned inside the right hip.
The shoulders have turned approximately 90 degrees from their set up position.
The right knee is slightly inside the right foot.
The left heel remains on the ground for all clubs except the long irons and the woods.
The clubface remains closed.
The hands are positioned over the right shoulder at the top of the swing.
The head has dropped slightly because of a squat in the lower body.
The hips have turned approximately 45 degrees from their setup position.
Both of the knees maintain their flexed position.


5 IRON - POSITION 5
© 1988 COMPUSPORT AT GC
The shift forward of the right hip drops the right side under the left. Notice how the right elbow is visible under the left.
The right hip is shifted and turned towards the target.
The right knee is shifted forward inside the right foot.

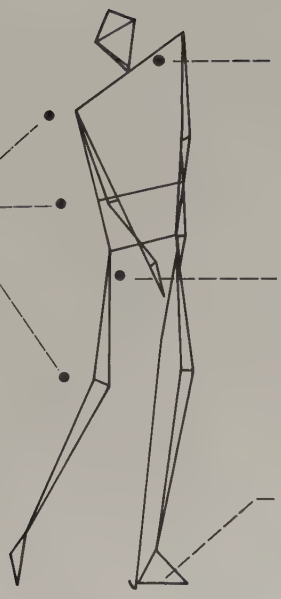

The clubface remains closed.
Notice how the hips and legs are rotated open to the target. The left hip and knee are now visible to the left of the right knee and hip.
The heel of the right foot is raised slightly off the ground.

5 IRON - POSITION 6 © 1988 COMPUSPORT AT GC


The right knee and right hip continue to shift towards the target.
The right heel continues to raise and turn to the target.


The left hip is rotated to the left of the right hip.
The clubface remains closed eliminating the need to use the hands and wrists to square the clubface.
The left leg is rotated to the left of the right leg.
This rotation of the left side is necessary to enable the right side to drive through the shot.

5 IRON - POSITION 7 © 1988 COMPUSPORT AT GC

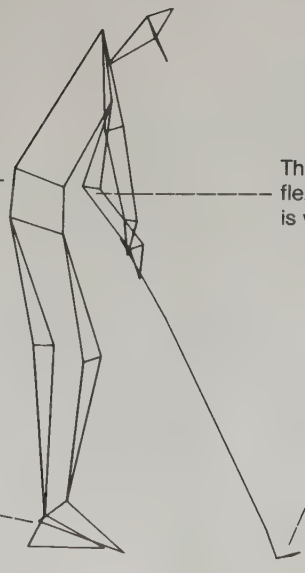


This dot indicates where the model's left shoulder was at set up. The shifting of the hips towards the target raises the left shoulder.

The dots indicate where the right shoulder, hip, and knee were at setup. Note that the entire right side is shifted into the shot.

This dot indicates where the model's hands were at set up. The movement of the hips towards the target has shifted the hands approximately four inches forward at impact.

All of the weight is positioned on the left foot.

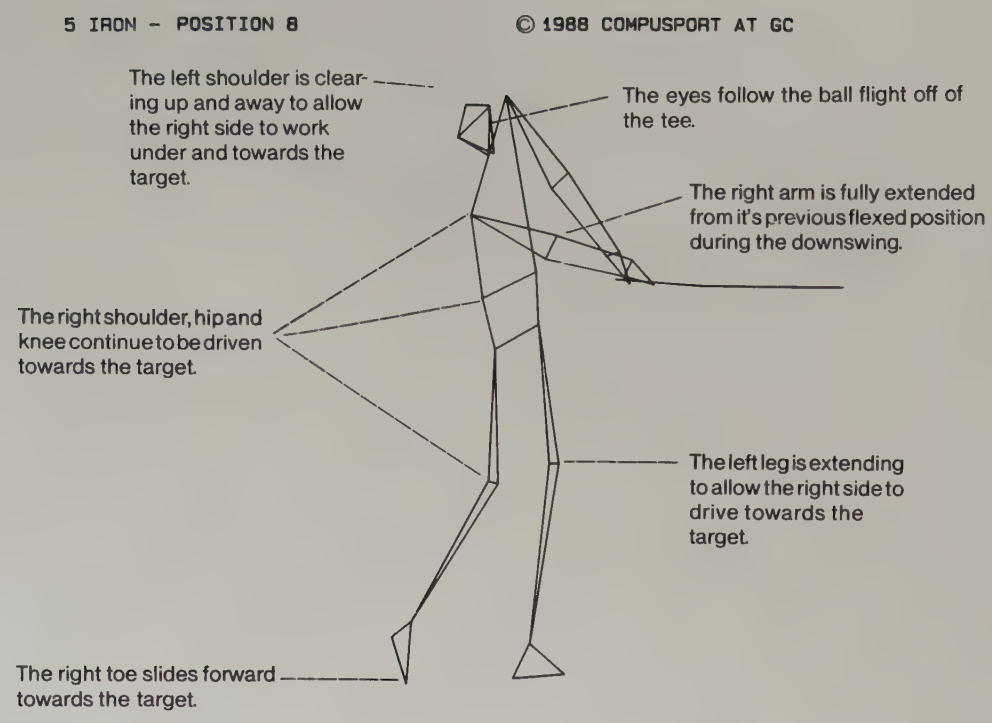


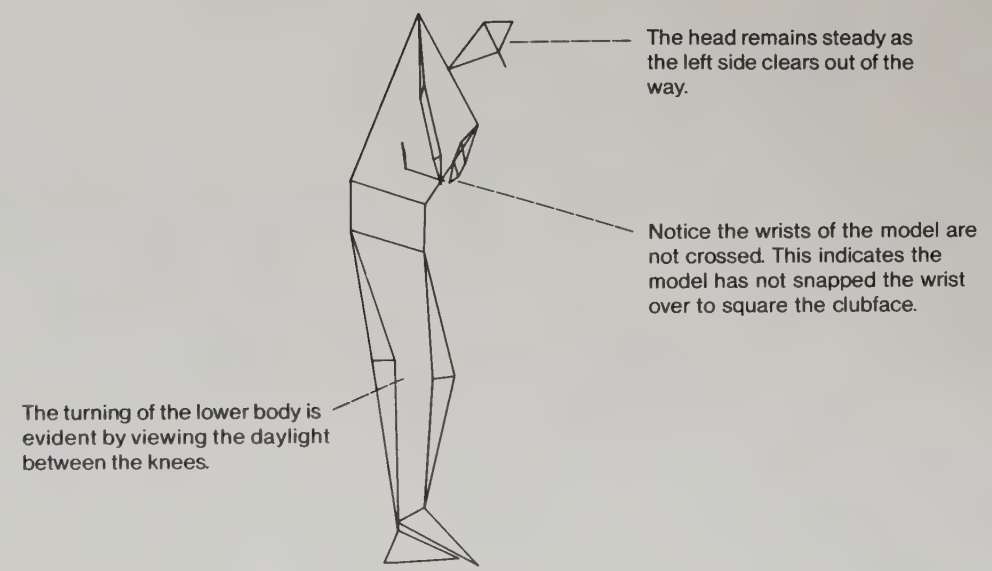
The hips are rotated open to the target approximately 45 degrees.

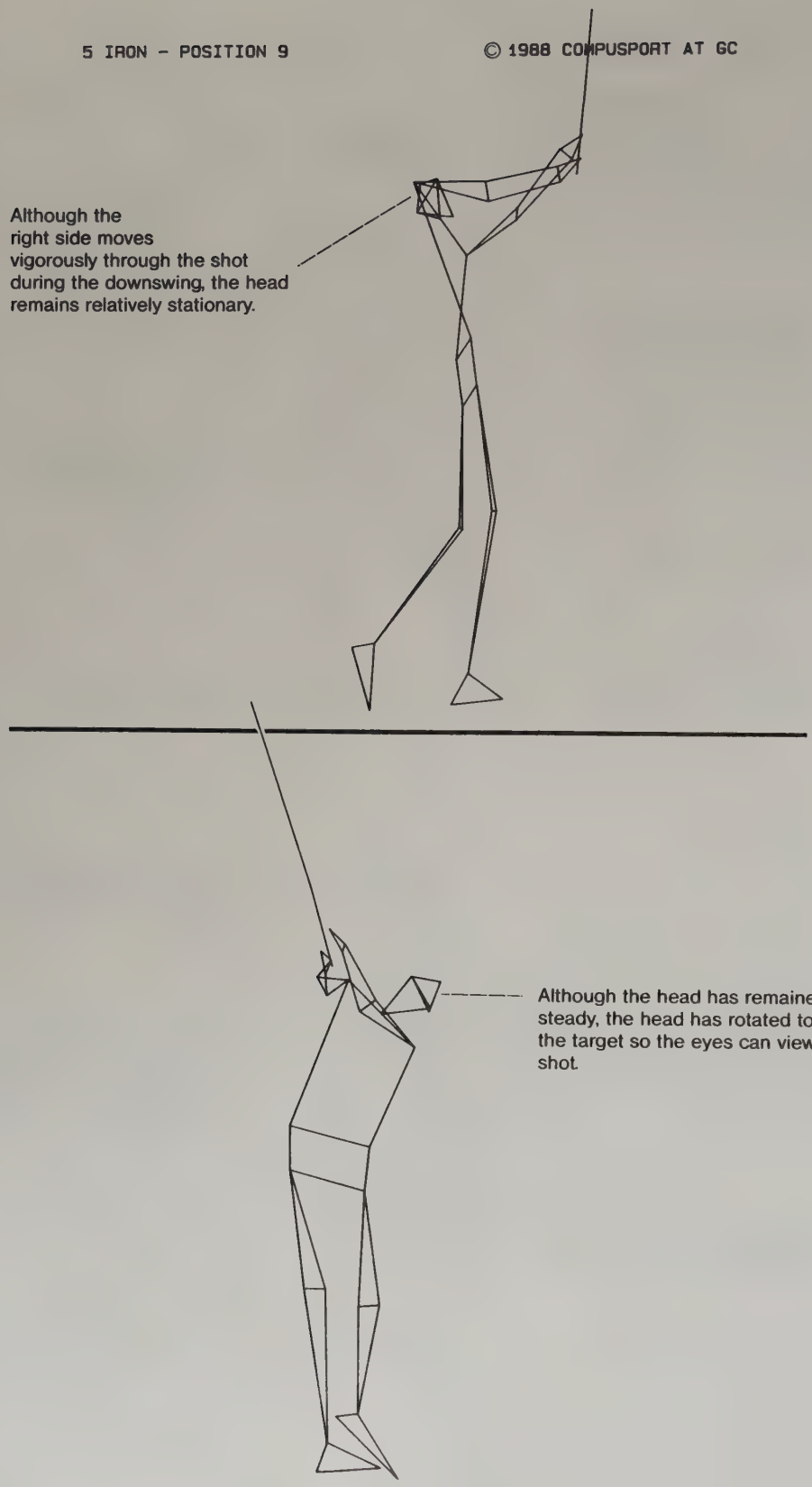
The right elbow maintains a flexed position and the left arm is visible above the right.

The clubface is square.

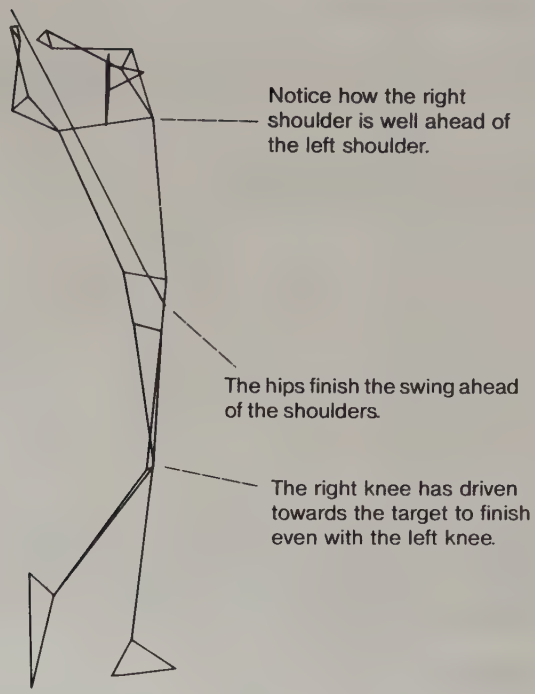
The right heel is continuing to raise and turn towards the target.

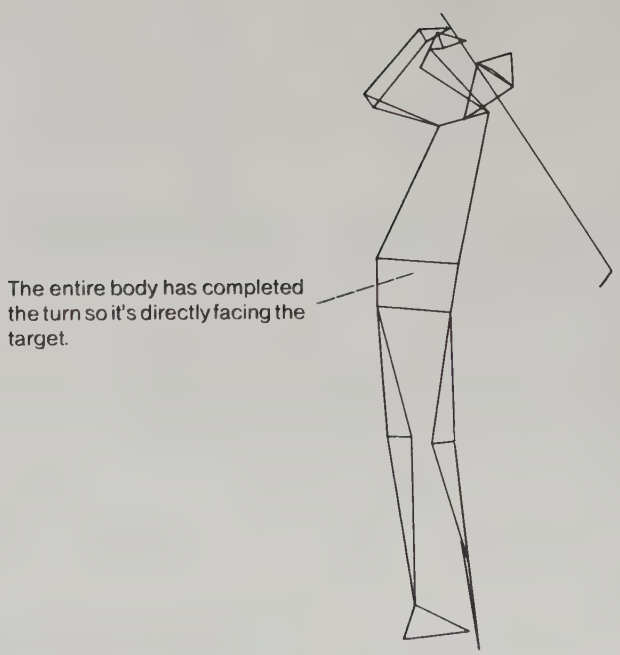

5 IRON - POSITION 8
© 1988 COMPUSPORT AT GC
The left shoulder is clearing up and away to allow the right side to work under and towards the target.
The eyes follow the ball flight off of the tee.
The right arm is fully extended from it's previous flexed position during the downswing.
The right shoulder, hip and knee continue to be driven towards the target.
The left leg is extending to allow the right side to drive towards the target.
The right toe slides forward towards the target.


The head remains steady as the left side clears out of the way.
Notice the wrists of the model are not crossed. This indicates the model has not snapped the wrist over to square the clubface.
The turning of the lower body is evident by viewing the daylight between the knees.


5 IRON - POSITION 9
© 1988 COMPUSPORT AT GC
Although the right side moves vigorously through the shot during the downswing, the head remains relatively stationary.
Although the head has remained steady, the head has rotated towards the target so the eyes can view the shot.

5 IRON - POSITION 10 © 1988 COMPUSPORT AT GC


Notice how the right shoulder is well ahead of the left shoulder.
The hips finish the swing ahead of the shoulders.
The right knee has driven towards the target to finish even with the left knee.



Appendix 2-C

INFORMATION THAT MIGHT HELP ME SCORE BETTER

Ball Temperature

The temperature of a golf ball affects its ability to rebound from the clubface. The following chart is the approximate influence of temperature on the ball for a shot that would normally carry 220 yards at 75 degree temperature.

Carry in yards	Degrees (Fahrenheit)
226	105
224	95
222	85
220	75
216	65
214	55
205	45
196	35

Since rubber is a poor conductor of heat, placing the ball in your pocket would not be sufficient to warm the ball. Keeping balls in a warm room overnight and interchanging the ball every three holes would be better. It is against the rules, however, to use a handwarmer or similar device for the purpose of heating the ball during a round.

Influence of Wind

Wind can have a great deal of influence on your shots and club selection. Here is a chart with approximate figures on the effect of following and head wind.

Wind (mph)	Carry of Shots (yards)	Total Length (yards)
30	158	162
15	187	208
0	200	232
15	209	255
30	223	268

In a head wind of approximately 30 mph, a ball that is sliced or hooked will curve 5 times greater against the wind than it will downwind.

Off-Center Hits

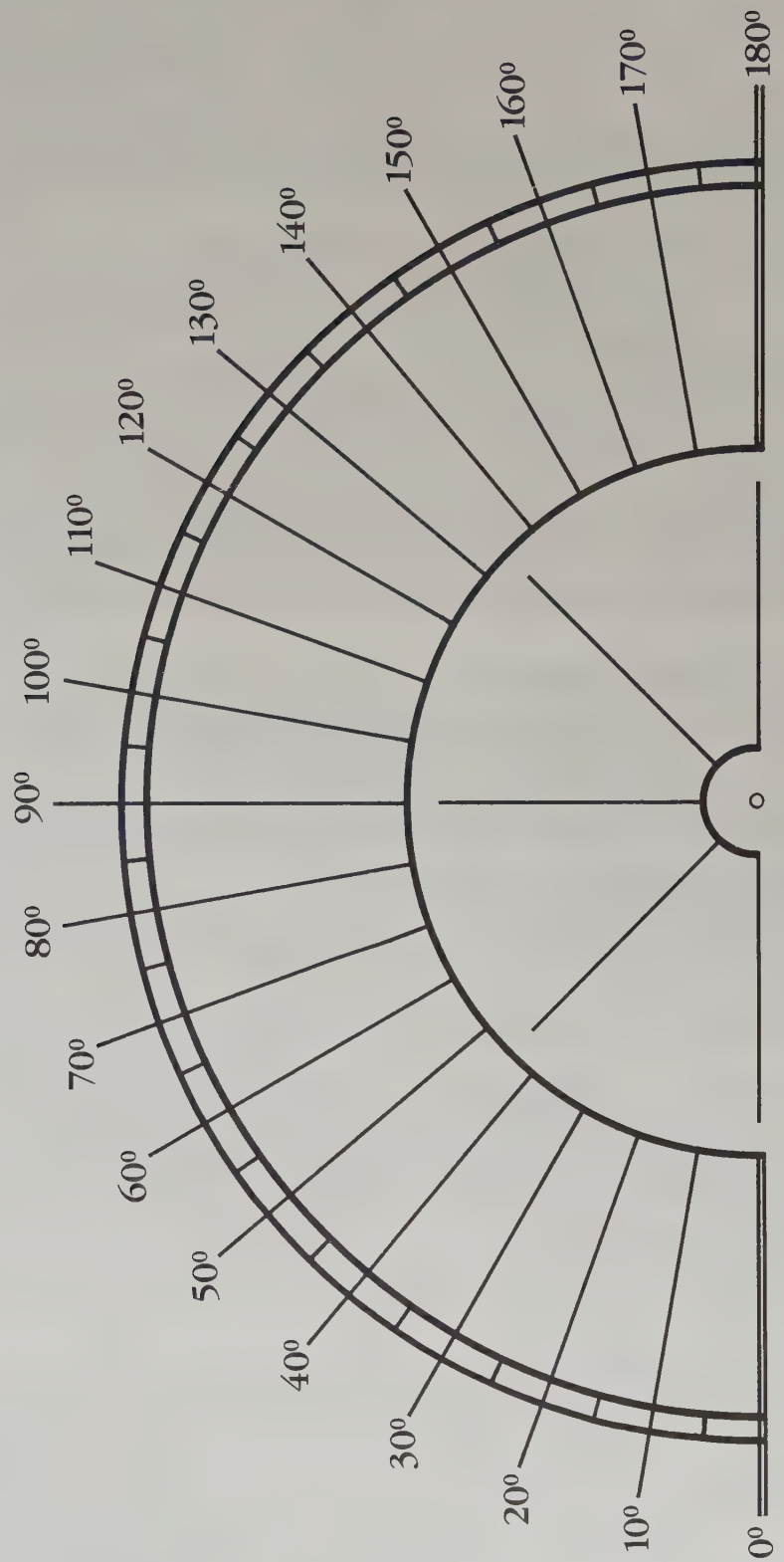
Clubhead speed is most generally thought of when discussions of distance take place. Another important consideration is squareness of contact in relation to the center of the clubface. Listed below are approximate figures related to off-center hits.

Center Face Hit (driver)	250 yards
¼″ off-center	245 yards
½″ off-center	235 yards
¾″ off-center	215 yards

The above information based on data from *The Search For The Perfect Swing*, Alastair Cochran and John Stobbs, Lippincott, N.Y., 1968.

Appendix 2-D

FLEXIBILITY TEST PROTRACTOR



Appendix 5-A

ACQUISITION OF SKILL

by: R. Pickard, B.P.E., Dip P.E.

A. Learning

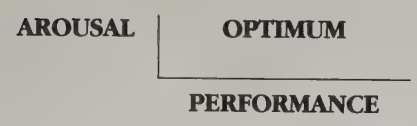
1. Learning is a relatively permanent change in performance resulting from practice.
2. SKILL is a measure of the degree of success toward achieving an objective with efficiency and effectiveness. Skill is very specific and involves several characteristics.
   (a) It is an organized sequence of movements.
   (b) It requires spatial and temporal organization.
   (c) It involves accuracy and uniformity of execution; and it is done to accomplish a purpose.
3. The performer is an information processor.

   The individual searches the environment for relevant sources of information (feedback) to monitor and control the accuracy of performance.

   Skills which are relatively independent of feedback are *closed skilled,* and those heavily dependent on feedback are *open* or *strategic* in nature.
4. The problem in learning is to decide which cues contain the most information.

B. Basic Factors In Learning

1. Age: Basic skills are usually learned before 6 years while most complex skills can be taught in the 6-12 years age range. Concept of "readiness" important.
2. Intelligence: No real relationship between intelligence and performance.
3. Sex: Girls more advanced until puberty.
4. Arousal: Athlete must be motivated to an optimum level. Beyond this level arousal interferes with concentration.



5. Personality: Athlete must have need for "motor achievement."

C. The Learning Process

1. Many skills are learned by trial and error. It is the job of the teacher to short circuit the trial and error process.
2. Learning Stages
   (a) Cognitive — the beginner will first attempt to "understand" the task and its demands. Verbal instructions and demonstrations are very important to this stage.

   (b) Associative — gross errors are gradually eliminated. Such factors as prior experience with similar skills, complexity of the skill, practice schedules, teaching methods, knowledge of results, and motivation of the learner will determine the length of this phase of skill learning. Coach should be critical and provide feedback and motivation.

   (c) Autonomous — practice tends to automate skill beyond level of attention.

Practice

1. No condition is of greater importance to the acquisition of motor skills than practice. Practice is essential to acquiring skill in any motor task.
2. The two most obvious effects of practice in the learning of motor skills is first increasing the speed of performance, and second, increasing accuracy, or reducing errors.
3. A skill may be practiced continuously (massed) or with rest pauses (distributed). Research has generally shown that distributed practice periods are more efficient than massed practice periods for motor learning. As the skill becomes well established then practice sessions can become longer.
4. Whole or Part method — The whole method seems preferable when the motor task consists of serial movements which form a chained sequence, i.e., Tennis serve.

   If the task is complex and/or is composed of various components, each of which can be identified as a complete unit, then the part method or practice may be superior, i.e., Basketball: dribbling and shooting. If the part method is used, it must be with reference to a concept of the whole task.
5. Practice alone is not sufficient for improvement. Without knowledge of *results,* interest and *attention, meaningfulness* of the task to the learner, understanding of *goals, readiness* to learn, and some degree of relationship of practice conditions to real conditions, practice for all practical purposes is wasted.
6. Better learned skills are less prone to be disrupted by manipulated environmental conditions. Experiences in varying instructional or stressful conditions will contribute to high levels of skills.
7. Reinforcement increases the probability that the desired act will occur. Random reinforcement is a more effective continual form of motivation than constant reinforcement.
8. Very high motivation impedes progress in complex tasks. Highest performance is attained by individuals with intermediate motivation or drive. There is an optimal motivational level for each task.
9. Reasonably hard, specific, but attainable goals produce better performance than easy goals or a general goal to do one's best.
10. Behavior is influenced by previous experiences. Greater resemblance between task elements, between their respective stimuli and responses, results in a greater amount of positive transfer. Transfer influenced by such factors as amount of practice on the prior task, motivation to transfer skill, method of training, and intent of transfer.

USE OF CUES

Verbal

1. Keep explanation to a minimum in the early stages of learning.
2. Direct attention to the essential aspects of the skill.
3. Avoid excessive analysis of movements of body parts.
4. Increase verbalization only as skill understanding increases.

Manual

1. Employ only after exploring other methods.
2. Just to "get the feel."
3. Limit to early trials.

Visual

1. Give the learner a clear objective and plan of action.
2. Demonstrate correctly.
3. Demonstrate at normal speed to retain essential timing.
4. Present more than once, especially for beginners.

Teaching Skills

The teacher has to provide or facilitate the best means of skills acquisition. His aim is to get the learner to store as near a perfect model of performance as possible and then replicate it.

Factors which affect negative skill learning:

(i) lack of motivation
(ii) fatigue
(iii) poor teaching methods, or
(iv) an inability to recognize errors in performance

Factors which affect negative skill learning:

(i) Motivation: arouse interest, sustain this interest. Teacher should be enthusiastic and find out what turns on each competitor best to skill learning.

(ii) Reinforcement: positive reinforcement of reward is by far the best method of motivation.

(iii) Selective attention: The teacher should direct the attention of the learner to no more than three or four salient points which are crucial to the performance of skill. Overload of information will result in bad performance. Similarly, it is important that the learner fully understand the nature of the task before the initial experience of the activity takes place.

(iv) Knowledge of results: Inform the learner of the correctness or otherwise of his actions. This external feedback may come from the coach or the learner himself when he sees the results of his own actions — give progressive evaluation.

(v) Practice: "Right practice, the results of which are known, makes perfect." For learning a skill distributed practice seems to get the best results. When the skill becomes automatic, then massed practice over a longer period may be better.

For best results, mental practice should be interspersed with actual physical practice.

(vi) Individual differences: Each individual has his own unique pattern of hereditary, innate ability, temperament, varying background of experiences and training, aptitude, interest, needs, etc., and it would be absurd to expect them all to perform in exactly the same way.

Most of the great coaches in the world today are those with carefully organized programs of training and competition which leave little to chance. No matter how naturally gifted an athlete or team may be, the coach without a plan for development of those talents will usually fail to unlock their full potential.

Appendix 5-B

"A DIFFERENT TEACHING STYLE"

by: Dr. Ken Blanchard

(edited for use in the PGA Teaching Manual)

As I tell managers all the time in my seminars: the most important thing about improving performance is not what happens when you're there, but what happens when you're not there.

This is as true for golf habits as it is for work habits. The real test comes after the lesson is over and you are on your own with no one to guide or correct you but yourself.

Different Strokes for Different Folks

In applying principles of management and human behavior to the game of golf, I find that Situational Leadership, a concept I developed with Paul Hersey in the 1960s, works extremely well when used to improve someone's golf performance.

Situational Leadership, and the follow-up model I have more recently developed called Situational Leadership II (SLII), is based on the belief that there is no one best teaching approach. It all depends on who you are teaching, their competence level and their confidence level in each of the desired areas of skill improvement.

When applied to golf, Situational Leadership identifies four different teaching styles: Directing (Style S1), Coaching (Style S2), Supporting (Style S3), and Delegating (Style S4). These styles differ in three ways: (1) The amount of direction the teacher provides, (2) the amount of support the teacher provides, and (3) the amount of student involvement in decisions concerning the behavior change.

Directing is high on directive behavior and low on supportive behavior. It involves telling the student what, when, where, and how to do something. The assumption with a directing style is that the student comes to the task with an "empty barrel" of knowledge and experience. Therefore, it is the job of the teacher to fill up the student's barrel. Directing is thus a "barrel-filling" style.

Coaching is high on both directing and supporting behavior and therefore, involves both "barrel-filling" and "barrel-drawing," that is, drawing upon the experiences a student already has. The assumption with a coaching style is that the student comes to the task with some knowledge and experience but not enough to complete the task to the desired level of competency.

Supporting is high on supportive behavior and low on directive behavior. It involves primarily asking the student questions, listening to his/her answers and praising performance.

The assumption with a supporting style is that the student comes to the task with a "full barrel" of knowledge and experience but he or she is not consistently applying that knowledge and thus needs some reassurance. Therefore, it is the job of the teacher to draw from the student's barrel of experience, and reinforce what the student already knows to be correct until it is an incorporated part of the student's behavior. Supporting is thus a "barrel-drawing" style.

Delegating is low on both directing and supporting behaviors. The teacher lets the student operate more independently and make the decisions about what needs to be done to improve his or her behavior in the desired area of improvement. The assumption with a delegating style is that the student's barrel is not only full of knowledge and experience, but he or she also has an adequate amount of self-confidence for consistently performing the task at hand to the desired level of expertise. The student is able to ultimately provide his or her own directions and support regarding the task and might need only an occasional reminder to do so by the teacher.

Situational Leadership is a sequential model. A golf teacher wants to go from a directing barrel-filling style that is appropriate for an enthusiastic beginner to a delegating style that is appropriate for a peak performer. What two situations does the teacher have to go through before using a delegating style? Quite obviously, coaching and supporting.

The problem that I have found is that managers and teachers do not "stay on track" from one stage to the next; they get "derailed" by moving from a directing style to a delegating style and expect people to immediately be able to apply concepts and skills they just learned without the supporting or coaching steps. This sets the learner up to fail since rarely can a person skip any of these steps and truly integrate the new learning into his or her behavior.

The Golf University at San Diego

Most people don't often get a chance to put something they really believe in into practice in a big way. Through strong belief that management concepts such as Situational Leadership can be applied to other areas of human behavior, I have teamed up with some outstanding golfing professionals to implement my vision in what I consider an ideal environment. We have launched a permanent program called the Golf University of San Diego at Pala Mesa, a beautiful resort just north of San Diego.

The concepts I have described in this article, as well as other proven management principles, are the basis for the design of the teaching curriculum at the Golf University. Our teaching staff, directed by PGA professional Kip Puterbaugh and myself, know these concepts and use them throughout their teaching. We realize that at the end of one of our three- or five-day golf programs our staff is forced to go to a delegating "leave-alone" leadership style. Given that reality, in all our programs we strive to gradually move students to being their own best coach, that is, from a teacher-controlled to student-controlled learning style.

What contributes to our success is that all of our students are taught the management concepts that the staff uses. I am a firm believer that management and teaching is what you do with people not to them. The first evening, participants are taught the school's philosophy and major concepts that will be used throughout their course. Then after they have had their swing technically diagnosed and videotaped the next day they establish specific learning goals for both their long game and their short game. Each participant teams up with a learning partner, and small groups of five to six students are assigned to work with a golf professional for the entire program.

Each team systematically works on driving, chip and sand wedge shots and putting on the school's own practice ranges in a format that combines lecture with individual analysis and feedback. All elements of the game are then combined as the group goes out on the course together with their golf professional and learns to make the jump from being good at "practicing" to being good at "playing." The professional explains his strategy for how he plays each hole and each shot. Each team member then does likewise while he or she focuses on a limited number of specific performance improvement goals.

The strategy of the Golf University is to have both professionals and learning partners gradually work themselves out of their jobs and place the responsibility for learning and improvement on each of our golfing students. So while our staff gives a lot of direction in the beginning, they move from directing to coaching to supporting during the second and third days of our program so that when the course is over the students are able to apply what they have learned.

I find that focusing on improving performance through the use of management technique in an activity such as golf can help give a manager perspective and objectivity in his or her job and in the work place as well. Improved performance is contagious, and enthusiasm to improve is greatly enhanced when success is achieved in one skill area — such as golf.

Appendix 5-C

REASONS FOR PLAYING AND INSTRUCTION DATA

(National Golf Foundation)

When the National Golf Foundation promotes family golf as a laudable trend for the future, it isn't simply coining a term to correspond with mother, apple pie, and the American flag. The notion of family golf, to be sure, will induce a warm feeling for sentimentalists who play the game, but even cold facts bear out the importance of family to the growth and health of golf.

How People Are Introduced To Golf

If not for family, some 45 percent of today's golfers may never have been introduced to the game of a lifetime. Of all golfers identified by NGF/Market Facts research, nearly 18 percent were brought into golf by their fathers. A spouse, more often than not the male, accounted for another nine percent, while mothers, brothers and sisters combined to deliver eight percent of today's golfers to the first tee. The remaining portion of family-inspired golfers were wooed and won by "other relatives," according to statistics.

Even so, while family members frequently share their passion for golf with loved ones, people who play are more apt to have been originally attracted by a friend than by a single family member. That is true, at least, for both female/male friends, identified in surveys by some 36 percent of the players as the source of their first exposure to golf.

There are, however, some interesting variations in the figures. For example, a woman's entrance into golf is heavily dependent upon her husband's interest and, perhaps, his patience. Statistics show 37 percent of the women golfers were introduced by their spouses. However, not many husbands (2.8%) followed their wives into golf.

Competitive golfers show a large propensity (21%) to have been father-introduced, as do those who identify themselves as frustrated golfers (20%). So if dad gets the credit for fostering a competitive spirit, he may also be debited with golf-related psychoses.

Chart I
Introduction to Game of Golf (Who was the introducer)

Golfer Segments

Impressively large percentages of those who play frequently, more than 25 rounds a year (13%), and those who play avidly for exercise (13%), found golf on their own. Sixteen percent of those who play solely for relaxation and being outdoors, and 32 percent of senior golfers, both consider themselves self-starters.

Why People Take Up Golf

Today's golfers can recite a string of reasons for having started the game. Of all golfers, 78 percent say they play for recreational enjoyment. Surprisingly, even 62 percent of those who struggle home 35 or more strokes over par and 60 percent of the frustration fraternity agree on golf's recreational attributes. Fully 74 percent of the women golfers concur with this clearly number one reason for playing.

Second among reasons most frequently mentioned by all golfers for playing the game is the fact that friends play. This encourages 63 percent to follow this pastime. Relaxation is cited by 59 percent of those responding, followed by the need for exercise (56%) and to get outdoors (54%).

Exercise as a motive to play ranked fourth as an inducement, but was higher among females (67%) and seniors over 60 (79%) who elected golf to trim and tone the body. Heavy-frequency golfers, 25 or more annual rounds, also cite exercise value in 69% of their responses, but the total overall average was 56%.

Golf's image is relatively important to only 16 percent of all golfers, but the factor grows in importance among heavy-frequency golfers (30%). Newcomers are less impressed, each group producing fewer than six percent who feel image of the game is reason for playing.

Most people couldn't care less whether business associates play, the total universe showing only 12 percent so motivated. Even fewer (15%) play to meet people. These are areas of potential appeal which might be promoted more vigorously by agencies devoted to the proliferation of golfers.

Chart II

Golf Market Segmentation Study — Fall, 1988

Reasons for Currently Playing Golf

Analyzed Respondents	1460	100.0%
For Relaxation	862	59.0%
Friends Play	962	63.4%
Relatives Play	515	35.3%
For Business Reasons	172	11.8%
Recreational Enjoyment	1137	77.9%
For the Competition	394	27.0%
For the Exercise	820	56.2%
To Get Outdoors	794	54.4%
To Meet People	215	14.8%
For the Challenge	619	42.4%
Like Image of Game	236	16.1%
Helpful in Career	86	5.9%
Other Reasons	24	1.7%

Early Instruction

Approximately one-third of all golfers surveyed managed to get into the game without any specific early instruction. This has been particularly true of male golfers, fewer than 60 percent of whom sought and found lessons from any source. Eighty-four percent of women golfers reported they had received early instruction.

A trend is apparently developing, however, which will deliver better-trained players to the links. While only 58 percent of the seniors (60 years and older) remember having any instructional help when they started, more than 80 percent of the junior respondents took early lessons.

Instruction

Playing well seems to be a priority for most people who play golf. Statistics show that three out of four golfers feel it is important to score well. Almost the same number of golfers, approximately 70 percent, actually get mad at themselves when they play poorly. It seems, at least for golfers' mental health, that they would do anything and everything to become consistent players.

As with most sports, in golf there seem to be two main avenues to becoming a better player: practicing and receiving quality instruction. However, from the previous inspections of golfers' ability, statistics indicated that only 40 percent of all golfers practice even once a month. Even more alarming is the fact that over one-third of all golfers never practice. The percentage of golfers who receive professional instruction is even less encouraging. Research indicates that only 14 percent of all golfers have taken professional lessons in the last year. Although this percentage is very low, lesson-taking is stronger in select golfer segments.

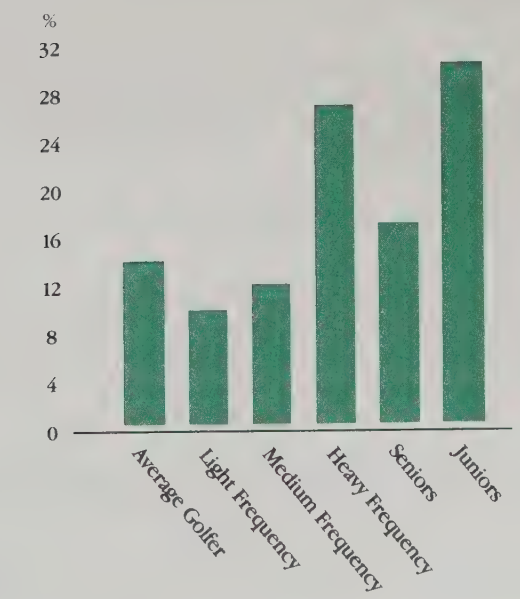
For example, young players are more apt to take lessons, as over 30 percent of junior golfers have taken at least one lesson during the past year. Also, the more frequently one plays golf, the more likely that person is to take a lesson. Twenty-seven percent of heavy-frequency golfers, as opposed to only 10 percent of infrequent golfers, have taken at least one lesson the past year. The following chart presents the incidence of lesson-taking among different groups of golfers.

Surprisingly, lesson-taking does not seem to be related to ability. Of the four ability groups used in the survey — handicaps of 0-14, 15-22, 22-34, and 35+ and over — three of the groups showed approximately 17 percent had taken at least one lesson. The only exception was in the 23-34 handicap range, where only about 11 percent had taken at least one lesson in the past year.

There were significant lesson-taking differences. The competitive golfer and the healthy/sociable golfer reported 22 percent of its members having taken a lesson the past year. As would be expected, the non-competitive golfers reported that just one in 10 took to the lesson tee this past year.

Chart III

Percent of golfers from various frequencies of play and age who have taken at least one lesson in the past year.



How effective were these lessons? To the golf professionals' credit, lesson-takers view lessons as extremely helpful. Two-thirds of all lesson-takers responded that their lessons were very helpful. Approximately one-third of all golfers having taken lessons considered the lessons at least somewhat helpful. Only one percent responded that the lessons they took were no help at all. Praise, indeed, for the teachers of the game.

As with most ratings, there are a couple of slight exceptions in relation to the helpfulness of a lesson. In what could be a reflection of beginner's frustrations, only 55 percent of new golfers reported finding lessons very helpful, 38 percent rated professional lessons as somewhat helpful and 7 percent described the lessons as not at all helpful.

The basic message of this chapter from the survey findings is that people who do take lessons find them very helpful and consider it money well spent. However, not very many golfers are taking lessons. This study would suggest that golf teachers could discover considerable latent demand if they intensified the marketing of their product.

Chart IV

How Proficient Are Today's Golfers?

(The following summarizes what respondents say is their average score for 18-holes on a regulation golf course)

Score	Male	Female	All
70-79	12%	15%	13%
80-89	33%	17%	29%
90-99	30%	26%	30%
100+	25%	42%	28%
Average Score	93	98	94

Source: 1989 NGF Golf Consumer Profile

Appendix 7-A

GOLF SWING MISCONCEPTIONS

by

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PGA Professional
Medinah Country Club

and

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Northwestern University

In previous articles, I emphasize that the golf swing is primarily a rotational movement of the body in which the big muscles of the shoulders and hips dominate. The small muscles of the hands and arms simply follow this movement and respond to this rotation. As a result, proper weight shift during the golf swing is attained by this body rotation.

In this article, we'll discuss some long held beliefs about the golf swing and try to explain how some of these beliefs have actually inhibited the learning of a correct golf swing motion. Let's get started:

Misconception #1: Keep the left arm (or lead arm) straight or stiff.

Reasons why this is not true: If the left (lead) arm is kept rigid and stiff throughout the entire swing motion, the arms will work independently of the body. Also, the stiffness in the arm will induce tension and limit the rotation of the left shoulder.

Misconception #2: Keep your head down.

Reasons: If the golfer has his head buried in his chest, he will inevitably lift it up as he comes into impact. The "head down" syndrome limits the ability of the shoulders to turn under the chin. Usually, this head position is a result of poor posture at set-up.

Misconception #3: Keep your head still.

Reasons: If the golfer keeps his head absolutely still, he will limit his ability to rotate and get his weight over the back leg. There are very few tour players who can keep their heads absolutely still. Most players allow their heads to move just slightly in order to get an acceptable shoulder turn. Usually the head moves with the upper spine on the backswing until it has moved about two inches from where it started.

Misconception #4: The center of your golf swing is the sternum or the center of your golf swing is the head.

Reasons: If we pivot around a point of our body (the sternum or the head), we will never be able to get the weight shifted over the right leg (for right-handed golfers). Actually, the center of the swing is the posterior lower spine just below the small of the lower back.

Misconception #5: There is lateral motion away from and towards the target during the swing.

Reasons: Since the golf swing is a circular motion with the club, we must create a rotary motion with our bodies. There is little, if any, lateral motion during the swing. Essentially, what appears to be lateral motion is simply rotation of the body until the right hip is over the right heel on the backswing and the left hip has rotated over the left heel on the forward swing (for right-handed golfers).

Misconception #6: The arms swing and the body simply responds to that motion or the hands and arms move first and then the shoulders and hips follow.

If the hands and arms move first in the backswing, the shoulders will turn late in the backswing. As a result, the golfer will lose his extension and create an overly long and loose swing that is likely to come outside and over-the-top on the downswing.

Actually, the first part of the backswing should be a one-piece movement with the hands, arms, clubhead, shoulders and hips all moving away together. This insures a weight shift, arm and club extension and a firm and short swing.

Furthermore, if the swing produces centrifugal force, the center of the swing must move first to create the force. The true center of the swing is located in the posterior lower spine somewhere behind the hips. This part moves first and the hands, arms, and clubhead simply respond to this initial movement. The big muscles of the shoulders, back and hips are the slowest moving, yet most powerful muscles in the body. These muscles move first and keep the faster moving muscles of the hands and arms under control. Correct movement is always produced from the center of the body outward — never from the clubhead inwards.

Misconception #7: Feel like you are sitting on a bar stool with the weight back on the heels at the start of the swing.

Reasons: If we sit back on the heels at address, we are likely to have the knees over-flexed. With weight on the heels and over-flexed knees, we are not able to rotate the lower body because of abducted hips. Also, when starting with weight on the heels, there's usually no place to move except to the toes.

Misconception #8: The ball position changes for the different clubs in the bag. For example, the ball should be positioned forward for the driver and back towards the center of the stance for the nine iron.

Reasons: What appears to be a change in ball position with the shorter clubs is really only a narrower, more open stance with the weight distributed more on the front leg at the start of the swing. The ball actually looks like it is being played in the center of the stance for a nine iron and off the left heel for the driver. In reality, the ball position will be approximately the same for both the woods and the irons. It is the open and narrow stance that makes the ball appear back in the stance with the short irons. Essentially, there is only one bottom to your swing arc if we are going to create any consistently struck golf shots.

Misconception #9: The club moves straight away from the ball on the takeaway.

Reasons: The golf swing is a side of the line hitting game. By this, I mean that we are standing to the side of the ball. Because of the way we are set up, we must arc the club inside the target line as we take it back. In addition to this, the hands and the arms follow the body rotation both on the backswing and the downswing. If we follow the principle, then the turning of the shoulders and hips will naturally cause the club to come a little inside the target line on the backswing.

Misconception #10: The weight starts on the right leg (for right-handed golfers) at the start of the swing.

Reasons: If the weight started on the back leg at the address, it would be impossible to make a rotational move with the body. Because of this, the golfer would become a hand and arm player. Also, if the weight is set to the right at address, it is likely to move to the left on the backswing. This is the reverse weight shift that most golfers have in their golf swings.

Actually, the weight shift should start slightly forward on the front leg. From this position, the golfer has somewhere to move — to the right side.

Misconception #11: Restrict your hips on the backswing and coil your shoulders against them.

Reasons: If the golfer restricts his hip turn on the backswing, he will limit the range of motion of the shoulder turn. Only the very flexible and coordinated golfer is able to do this.

In reality, the hips control the shoulders both on the backswing and the downswing. Therefore, if the golfer restricts his hip turn, he will restrict his shoulder turn. With a restricted shoulder turn, the golfer is likely to start the downswing with the shoulders unwinding ahead of the hips. This will produce pulls and pull slices.

Misconception #12: We should return to the address position at impact.

Reasons: At impact, we see pictures of the tour stars that show them with the majority of their weight on their lead leg with hips opened to the target line and shoulders parallel to the target line. In fact, the hips are just slightly forward of the position they started in. The mistake most people make here is they slide their hips too far forward on the downswing creating weight shift and balance problems at impact.

In reality, the shoulders out-turn the hips on the backswing. This allows the hips to move first on the downswing and to open up and stay ahead of the shoulders at impact.

Misconception #13: The golfer should consciously try to release the club. This definition of release means to pronate and supinate the hands and arms and to consciously try to turn the club over through the impact area.

Reasons: Correct body (shoulder and hip) rotation will automatically create correct hand and arm rotation. Any conscious effort to open or close the clubface, either on backswing or downswing, will most likely create an inconsistency in your ball striking. Any conscious effort to try to release the clubhead is a compensation for poor body rotation.

If the golf swing is a circular motion in which centrifugal force is produced, the inertia and the weight of the swinging clubhead will automatically create the release.

Misconception #14: The power source in the golf swing comes from the hands, arms, and wrists. We should try to snap our wrists as we come into the impact area.

Reasons: Power in the golf swing comes from leverage (swing arc), torsion (body rotation), and weight shift. In order to achieve these three goals, we must rotate our bodies. The real power source in the golf swing is the hips. The faster we move the hips in the downswing, the faster the hands and arms will work. There is no conscious use of the wrists and hands through the impact area. The hands and arms rotate in response to body rotation.

Misconception #15: The golfer should stay behind the ball long after the ball is hit. A corollary to this is that the golfer should keep his head down and right (or left) shoulder back for as long as possible after impact.

Reasons: It is true that the head is behind the ball at the point of contact. But, just after impact, the forceful unwinding of the shoulders should allow the head to rotate with the shoulders and come up out of the shot. Any effort to keep the head and right shoulder back behind the ball after the point of contact will cause the weight to stay on the back leg. This error will cause all kinds of poor shots including pulls, pull hooks and push fades.

In reality, the shoulders turn about 200 degrees on the forward swing. The shoulders actually catch up to and pass the hips just after impact. At the finish of the swing, the right shoulder should be just slightly higher than the left with the chest facing to the left of the target line and the hips facing directly down the target line. This finish position insures that the shoulders have out-turned the hips and a correct weight shift to the left leg has been made.

Misconception #16: The golfer should pull the club down from the top of the swing with the left (or right) hand and arm. Another related statement would ask the golfer to pull the butt of the club at the ball on the downswing.

Reasons: If the golfer pulls the butt of the club down on the downswing or pulls down with the left (or right) hand or arm on the downswing, he creates angles with his arms. In this case, pulling down with the left hand and arm will force the left elbow up to the sky which will leave the clubface open through impact. Better advice might be "start the downswing with the lower body and try to keep the elbows down throughout the entire swing motion." If the golfer turns his hips through the ball instead of sliding through it, the clubface will naturally close and the left arm will fold downward after impact.

In addition to this, the golf swing is a bilateral motion and shouldn't be dominated by either the right or left side of the body.

Misconception #17: The path of the clubhead on a correct golf swing is inside-outside.

Reasons: Most of us have been taught to swing inside-outside. Unfortunately, this is not correct. If the golfer swings excessively inside-outside, he will push face and hook most of his golf shots. It might feel like we are swinging inside-outside, but what really should happen is this: The golf club approaches the ball from inside the target line through impact, and then moves off to the left of the target line after impact. This occurs because the hands and arms follow the body rotation both on the backswing and downswing. It is this "inward — to straight — to inward" club movement that creates a natural release of the clubhead through impact and divots that point slightly left on the target line.

Misconception #18: The weight stays centered throughout the entire swinging motion.

Reasons: If the weight stayed centered throughout the entire swing, the golfer would be unable to make a weight shift. Also, the golf swing is an elliptical arc (egg-shaped). This type of arc is created because the golfer is working out of two shoulder sockets and two hip sockets. On the backswing, the shoulder and hip turn create a weight shift over the right heel. Finally, on the downswing, the movement of the feet, knees and hips create a weight shift over the left heel.

Misconception #19: The golfer should try to shift his weight.

Reason: The weight shift is created by shoulder and hip rotation. The shoulders turn and the one-piece takeaway is responsible for most of the weight shift on the backswing while the hip turn is responsible for the weight shift on the downswing. There is a minimal amount, if any, of sliding the hips during the swing.

Misconception #20: The club is swung on a single swingplane.

Reason: First of all, everybody has their own unique swingplane because of posture, body build, how far they stand away from the ball, and their timing system. But, generally speaking, the downswing plane does come below the backswing plane because the weight is moving to the left pivot point. This movement to the left side abducts the arms (arms get closer) to the body and drops the plane below the way it went back. But each case is very individual as there have been many successful golfers who have come down outside the way they went back. The important thing to remember is that it is impossible to swing on a single plane on both the backswing and downswing. Also, about 24 inches prior to impact, the clubhead is approaching the ball from inside the target line.

*These articles reprinted courtesy of Chicago Metro Golfer.

Appendix 8-A

SAMPLE — GROUP LESSON PLAN — PUTTING

SESSION I OF II ON PUTTING

Objective:

A. To familiarize students with variety in putter head designs, grips, hosel design, materials, length and weight.

B. To review the goals of distance and direction.

C. To develop basic principles related to direction.

D. To develop basic principles related to distance.

Equipment:

Yardsticks, 2x4's, striped balls, mirrors, wrist locker, putters.

Lesson — 60 Minutes

Time

:00 1. Use putters from selected group to describe differences:

- Blade vs. mallet
- Round vs. flat grips
- Gooseneck vs. straight hosel
- Aluminum vs. brass, etc. (materials)
- Long vs. short
- Heavy vs. light

:05 2. Task — To present face squarely to target line at correct speed.

:07 3. Grip — *Placement:*
Show regular, reverse, cross-handed, split

:10 *Positioning:*
Palm-to-palm, inward rotation, lifeline grip

:12 *Pressure:*
Light, medium, firm — but constant

:14 4. Ball positioning — constant

- Arms vs. wrists/combination
- Eye line over ball
- Body motion held — weight fixed

:35 **Drills:**

Push putt, left hand alone dragging ball — use 2x4's, mirrors, yardstick.

:45 **Contests:**

1 foot to 10 feet consecutively

:55 **Review:**

Push putt, blade to target, control distance by motion.

Use word GRAPE as a memory aid:

G — Grip

R — Read

A — Aim

P — Positive

E — Effort

Questions:

:60 **Adjourn:**

SESSION II — ON PUTTING

Review — G-R-A-P-E

Allow students to putt — Use previous drills

Objective:

A. Teach reading of greens

B. Off-green putting

C. Cover rules and etiquette for putting green

Equipment:

Same as for Session I — plus lag line string or chalk

Lesson

1. Reading of greens — Grain…slope…imagery
2. Off-green putting — Fringe…rough…sand
3. Routine — Triangulation: See line…feel distance…stroke on line into hole

Contests:

Circle putt — 5 feet, 10 feet, 15 feet

Lag line putting

Appendix 8-B

PUTTING EVALUATION MATRIX

(Used by David Pelz to identify
and evaluate a person's putting stroke.)

Primary Factors

Path	Straight Along Target Line	Slight Inside Square Inside	Substantial Inside Square Inside	Inside-Out (Opposite Cut)	Outside-In (Cut)
Face Angle	Constant Square Square/Square	Small Rotation Open/Square/ Square	Symmetric Rotation Open/Square/ Open	Large Rotation Open/Square/ Closed	Hand Manipulation Very Open/ Closed/Closed
Impact Point	Sweet-Spot Repeatable	Slight Heel Repeatable	Variable Between Sweet-Spot Heel	Slight Toe	Very Toe

← Consistent Stroke ——————— Variable Stroke →

Secondary Factors

Hand Position					
Shoulder Alignment					
Forearm Alignment					
Putter Alignment					
Ball Position vs. Apex					
Ball Position vs. Eyes					
Head Motion					
Body Motion					
Wrist Motion					
Triangle Motion					
Left Arm Swing vs. Hit					
Grip Position					
Grip Pressure					
Tempo					
Pre Shot Routine					
Attitude					
Practice Habit/Time					

Appendix 8-C

TEST

adapted from the book

How Well Should You Putt?

by

Dr. Clyne Soley

Published by
Soley Golf Bureau
5541 Cribari Circle
San Jose, CA 95135

Chapter 1.

a. If a golfer's handicap is 10, how many putts should be taken per round? _____

Chapter 2.

a. Does a golfer average the same number of putts on all length courses? _____

b. Why do women have a lower percentage of putts than men? _____

c. On what length course would a 20 handicap man have his putts equal to 50% of his score? _____

d. On what length course would a 20 handicap woman have her putts equal to 50% of her score? _____

Chapter 3.

a. Why is the number of 2-putt greens almost exactly constant all across the handicap scale? _____
_____

b. How often do the top men professionals 3-putt per round? _____

c. How often do the top men professionals 2-putt per round? _____

d. Some golfers say they never 4-putt, how come? _____
_____

Chapter 4.

a. Why do the top men professionals have less than 31 putts when they shoot about 70 or 71? _____
_____
_____

b. On normal courses, from what distance do the top men professionals sink half of their putts? _____
_____

c. Do the top men professionals ever miss short putts? _____

Chapter 5.

a. What percent of professional women's scores are putts? _____

b. At what handicap level does a man average the same number of total putts per round as the top LPGA players? _____

c. Which members 3-putt more greens, LPGA or PGA? _____

d. If the men actually putt better than their pro counterparts in the LPGA, what are some of the possible reasons? _____

Chapter 6.

a. Do the top professionals take fewer putts in their good rounds than in their average or poor rounds? _____

b. In going from their best scores to their worst ones, the percent of putts in the total score decreases. True or False? _____

c. As their scores increase, do the strokes to get on the greens and number of putts both increase? _____

Chapter 7.

a. Why are more putts missed by top men professionals on greens prepared for important tournaments than on normal greens? _____

b. How can a skilled professional golfer miss a putt of 6 inches or less? _____

c. Some amateur players claim they have never missed a putt less than a foot long. How do you explain that? _____

d. If a player concentrates properly, shouldn't all putts of 2 feet or less be holed? _____

Chapter 8.

a. For scratch men golfers (0-handicap), how much easier are 3-foot putts than the 6-footers? _____

b. For the average 18 handicap male, how much easier are the 3-footers than the 6-footers? _____

c. What handicap player would make as many 3-foot putts as the scratch player would make from 6 feet? _____

d. Is there a fairly constant difference between the percent of putts made from 3 and 6 feet as the handicap increases? _____

Chapter 9.

a. For scratch women golfers, how much easier are 3-foot putts than 6-footers? _____

b. For the average woman golfer (handicap 38), how much easier are the 3-footers than those from 6 feet? _____

c. What handicap level woman golfer would make as many 3-footers as the scratch woman player make from 6 feet? _____

d. How does the difference vary between percent of putts made from 3 feet and 6 feet as the handicap increases? _____

e. How do you convert 9-hole handicaps to 18-hole handicaps? _____

Chapter 10.

a. Why are downhill putts more difficult than uphill ones? _____

b. How can a typical amateur minimize the increased difficulty of downhill putts, especially the danger of 3-putting? _____

Chapter 11.

a. What is the main reason sidehill putts are more difficult than level or straight uphill putts? _____

b. What are some of the reasons that many golfers find right-to-left putts easier than left-to-right ones? _____

Chapter 12.

a. Is it easier to get a putt close to the hole than it is for another type shot, considering they are of equal length? _____

b. Do the best putters get the first putt near the hole? _____

Chapter 13.

a. The average male golfer (handicap 18) takes 34.1 putts per round. The 18 handicap lady takes only 32.8 putts. How come? _____

b. At a handicap of 10, men and women have the same number of putts. What percent of men have a handicap of 10 or less? _____

c. What percent of women have a handicap of 10 or less? _____

Chapter 14.

a. It has been shown that a crosswind can deflect a short putt. How do good players handle this situation? _____

b. Would wind affect putts more on fast greens or slow ones? _____

Chapter 16.

a. Why was the croquet putter banned? _____

Chapter 20.

a. Why is the 4 to 8 foot range of putts so important? _____

b. Does every golfer at some time or another take more than 3 putts on a green? _____

c. Some top tournament players seem to putt better when they first go on the tour, and then lose their putting touch after their middle 30s. Is that true for all golfers? _____

d. Why are some kids in their teens such good putters? _____

Chapter 21.

a. Is there any rule against putting one-handed? _____

*Editor's Note — The original test from Dr. Clyne Soley's *How Well Should You Putt?* does not include any questions for its Chapters 15, 17, 18 or 19.

ANSWERS

adapted from the book

How Well Should You Putt?

by

Dr. Clyne Soley

Chapter 1.

a. 32.1

Chapter 2.

a. Yes

b. For a given score, women require more strokes to reach the greens. For the same score, they have fewer putts.

c. About 3,000 yards.

d. About 1,900 yards.

Chapter 3.

a. Because the number of 1-putt greens is offset by the number of 3- and 4-putt greens.

b. About once every two rounds.

c. About 11.6 times per round.

d. They always concede themselves the third putt.

Chapter 4.

a. They don't hit all the greens in regulation.

b. From 7 feet.

c. Yes

Chapter 5.

a. 42%

b. 7

c. LPGA

d. Perhaps men have better hand-eye coordination, and perhaps they are slightly more aggressive on the greens.

Chapter 6.

a. Yes

b. True

c. Yes

Chapter 7.

a. Even short putts are much more difficult on fast greens prepared for important tournaments.

b. Carelessness

c. They always concede them.

d. No

Chapter 8.

a. From 6 feet they miss 48%. From 3 feet only 18%.

b. From 6 feet they miss 60%. From 3 feet only 27%.

c. 36

d. Yes

Chapter 9.

a. From 6 feet they miss 54%. From 3 feet they miss 19%.

b. From 6 feet they miss 65%. From 3 feet they miss 36%.

c. 60

d. The difference decreased as the handicap increased.

e. Multiply by 2 and add 5%.

Chapter 10.

a. Both distance and direction are more easily controlled when putting uphill.

b. Reduce the distance from which you just lag the first putt to the hole.

Chapter 11.

a. Sidehill putts change direction on the way to the hole.

b. Most golfers feel more comfortable with a right-to-left putt. By the action of contacting the ball with the toe of the putter (as many golfers do) more putts will be made in the direction of right-to-left.

Chapter 12.

a. Yes

b. Yes

Chapter 13.

a. Only a small percentage of women have a handicap of 18, while the 18 level for men is midway in the scale.

b. 18

c. 1.3

Chapter 14.

a. They hit the putt a little more firmly.

b. Fast greens.

Chapter 16.

a. The USGA decided it did not look like golf.

Chapter 20.

a. Up to 3 feet, most players make almost all of them anyway, and from 10 feet on up only a small percentage go in. The big difference comes in the 4 to 8 foot range.

b. Yes

c. No

d. Good coordination, good vision, and confidence.

Chapter 21.

a. No

Appendix 10-A

GREENSIDE BUNKER LESSON PLAN

(Sample for Two Sessions)

SESSION I OF II ON BUNKER PLAY

Objective:

A. To explain the principle of a bunker club's design, i.e., sole inversion, width, camber, weight, loft, leading edge, etc. show variety of clubs, mentioning relative effectiveness in varying types of sand.

B. Show principles of explosion and buried shot — bounce vs. dig.

Equipment:

Sharp, bladed club to show digging and large flanged club to show bouncing or leveling-off through sand.

Tee markers or 2 x 4's to place in bunker sectioning off safe zones; balls and baskets.

Lesson

1. Compare flange of bunker club with pitching club. Use "bounce" and "dig" demonstration clubs, if available. Demonstrate how design prevents the bunker club from penetrating too deeply. Show how one could destroy that feature in the club through poor technique.
2. Describe basic principle of shot.
3. Demonstrate grip, aim and set-up.
4. Give drills to develop skill. Line drill-circle drill-bounce off grass drill.
5. Group students so that each takes a turn consisting of six shots; other students working on drills or observing.
6. May use "feel" for a cue word:

   F = Face = (Set the face for the type of shot)

   E = Entry = (Determine the entry point and strike it)

   E = Effort = (Effort or pace will influence distance)

   L = Line = (Swing the club on a line parallel to the shoulders).
7. Explain distance control factors — arc length, clubface position, amount of sand, angle of approach.
8. Introduce buried lie and accommodations in technique, i.e., make club more of a digger by squaring face or toeing in if lie is deep, ball moved back in stance, hands advanced to lower leading edge. Let students experience.
9. Review.

SESSION II — ON BUNKER PLAY

Objective:

A. Review principles and practice of normal lie and buried lie.

B. To demonstrate other lies, uphill, downhill, fried egg and ball on pinnacle of sand.

C. To acquaint students with rules of etiquette of bunker play.

D. To challenge the students' achievement level with a contest.

Equipment:

Same as Session I plus rule book.

Lesson

1. Review principles of normal and buried lie; have students practice briefly.
2. Demonstrate:

   fried egg — treat as buried

   downhill — level shoulders to slope or change descent

   uphill — level shoulders to slope or if too steep, play back, lean in and pinch close.
3. Demonstrate bunker etiquette on entering, leaving, raking.
4. Discuss rules on soling club, loose impediments and obstructions, casual water, unplayable lie, balls adjacent — one to be marked, identifying your ball, playing wrong ball.
5. Reading the sand.
6. Have bunker contest.
7. Review.

Appendix 11-A

PROFESSIONAL GOLF LESSON EVALUATION*

(Professional's Name)

Pupil's Name _____ Date: _____

Address: _____

_____

Telephone: _____ / _____
Home Business

Occupation: _____

Present Hdcp. or Avg. Score for 18-holes: _____

Best Hdcp. or 18-hole: _____

How Many Years Played: _____ Frequency of Play: _____

Pupil's Own Evaluation: Excellent = 1; Good = 2; Fair = 3; Poor = 4

Putting _____ Problem _____

Chip & Pitch _____ Problem _____

Bunker _____ Problem _____

Full Swg. (woods) _____ Problem _____

Full Swg. (irons) _____ Problem _____

Phy. Condi. _____ Problem _____

Psychol. Control
on Course _____ Problem _____

Player's Goal: _____
_____ Date to
Achieve: _____

Player's statement of what he/she wishes to accomplish during this lesson or series of lessons: _____

_____

List any physical problems that would influence performance: _____

_____

Evaluation of player's equipment (condition and fit): _____

_____

Professional's evaluation of player's swing technique — strengths and weaknesses:

1.	____	____	____	Grip	9.	____	____	____	Position at Top
2.	____	____	____	Aim	10.	____	____	____	Lever Sys.
3.	____	____	____	Set-Up	11.	____	____	____	Timing
4.	____	____	____	Swg. Ctr.	12.	____	____	____	Impact
5.	____	____	____	Arc Lgth.	13.	____	____	____	Release
6.	____	____	____	Arc Wdth.	14.	____	____	____	Finish
7.	____	____	____	Dyn. Bal.	15.	____	____	____	Rhythm
8.	____	____	____	Swg. Plane	16.	____	____	____	Connection

1 = Good 2 = Acceptable 3 = Needs Work

* Add an asterisk to indicate extra; i.e., extra good, or in extra need of work
** Means double extra

Errors to Correct: _____

_____

Plan for Improvement: _____

_____

Progress Made During Lesson: _____

_____

Practice Assignment: _____

_____

Pupil verbalized problem, understands the way to overcome it and can demonstrate the practice assignment correctly:

Yes _____ No _____

Next Lesson _____ / _____ / _____
Day Date Time

Professional's Signature _____

* This material, as a two copy form, is available from *The Golf Works,* 4820 Jackson Town Road, Newark, Ohio 43055.

PROFESSIONAL LESSON RECORD SHEET*

(Follow-up)

Pupil's Name:_____ Date:_____

Pupil's ability to verbalize problems identified in previous lesson and way to improve:

_____

_____

_____

Amount of practice and play since last lesson:_____

_____

_____

Pupil's comments on practice and results:_____

_____

_____

_____

Professional's observation on changes since last lesson:_____

_____

_____

Additional comments from this lesson:_____

_____

_____

Progress made during lesson: _____

_____

_____

Practice assignment:_____

_____

_____

Next Lesson_____/_____/_____
Day Date Time

Professional's Signature _____

*This material, as a two copy form, is available from, *The Golf Works,* 4820 Jackson Town Road, Newark, Ohio 43055.

Appendix 11-B

HOW DO GOLF PROFESSIONALS LEARN TO TEACH?

by: Dr. Gary Wiren

Have you ever stopped to think how you learn? How you learn to do anything, like type, or play the piano or drive a car? There are, of course, a lot of ways you *can* learn, particularly in regards to motor skills like those mentioned. You can read about the skill, watch others perform, study pictures, mentally rehearse, listen to tapes, view films — you name it, there's a way it can be learned. But any method of learning other than "learning by doing" finishes a distant second place. Learning to play golf works that way — and learning to teach the game is not different.

Anyone who has stood long hours on the lesson tee for a period of years teaching the golf swing has to have some pretty good insight as to what does and doesn't produce success. In a way, teaching golf is like piloting an airplane. Flying is not too difficult when all the equipment is in perfect working condition, and the weather favorable. The real test comes when things don't go as planned, when the weather turns bad and instruments fail. Then experience makes the difference.

Golf is taught to human beings who, like the weather just mentioned, are far from predictable and only on infrequent occasions in perfect working order. Individual differences alone make the task of teaching a tremendous challenge. Mastering the art of teaching can be a lifelong quest. Knowing the subject matter is not enough; communicating it successfully to a variety of people is what puts teachers to the test.

The best example I can give of this phenomenon concerns a university golf class I was teaching several years ago. One student requested permission to bring a friend, an excellent varsity golfer, so that the student could get some additional help. Since the size of the class was quite large and I could get to only about a third of the pupils personally in each session, I granted his request.

This is what I observed: The young student had in the first few classes developed some basic motion and a sense of rhythm in his swing which was producing good success in moving the ball. He seemed to be getting the hang of "feeling a swing." After a warm-up period, he prepared to hit a few shots for his teacher-friend. Being a little nervous, he resorted to instinct on the first shot and right-handed it badly enough so that his left arm collapsed, causing him to barely tick the top of the ball sending it only a few feet from where he stood. "Oh, you bent your left arm," said his temporary mentor, "don't bend your left arm on this next swing." The pupil didn't. But in attempting not to bend his left arm, his motion became restricted and he failed to get any weight transfer to the left as in his downswing so that he ended up hitting some four inches behind the ball. The resulting distance bore a striking resemblance to the first shot. "You stuck on your back foot," said the varsity golfer friend. "Don't stay on your back foot this time." Trying not to bend his arm and not to stay on his right foot during the swing, our pupil, on his third shot, lunged to his left side, promptly raising his head and right shoulder on the downswing and making it impossible for the clubhead to meet the ball anywhere but on the sole. He was three for three. "Oh, you raised your head up, don't do that!" "Don't bend your arm, don't keep your weight on your back foot, don't raise your head" and on it went. In 15 minutes the pupil looked like a robot whose programming had gone haywire, not knowing what to do, only recognizing there were many things that he shouldn't do.

The amazing thing about the whole incident was that everything the varsity golfer friend told the pupil was right! The varsity player had a perceptive sense of error. The young man had made every one of those mistakes. But knowing the subject is one thing and knowing how to present it — well, that's something else again.

It takes experience with thousands of people to develop this sense of "when" and "how" in teaching. It's one of the things that distinguishes a master teacher from a semi-pro. That's why few amateurs, no matter how well they play, can help others, except those with the most obvious errors. Teaching golf, like playing, does not come quickly or easily. If anything it takes a longer time to become a fine teacher than it does to become a fine player.

Appendix 11-C

SUGGESTIONS FOR REACHING POTENTIAL AS A GOLF INSTRUCTOR*

by: Michael Hebron

I have been asked more than once, "What is involved in making progress as a player or coach?" My answer has always been the same, "I am not sure I know the whole answer, but in part it will take time, money, and help."

The Time: In my case, I spend 40 to 50 hours a week teaching and another 10 to 15 hours on research and study.

The Money: Over the years more than $25,000 has been spent on cameras; developing film; books; teaching aids; video equipment; traveling to tournaments to study players; video tapes; etc.

The Help: No one coach has enough time or the ability to learn and gather all the information that is needed. Help from others (their discoveries, their failures, their research) is necessary.

Good players and coaches have no secrets. What they do have is an uncomplicated and simple approach to the golf swing that is based on the laws of motion. This section will give some insight and understanding into why things happen the way they do in a sound swing.

Our approach to coaching is based on the laws of physics and motion. In this section of the manual there is a summary of golf swing research that I feel will be very helpful in understanding the golf swing. It gives the reader the Scientific Reasons or Scientific Foundation for our approach.

When reading someone else's book or research, keep in mind that in just a few hours we are exposed to information and knowledge that has taken many years for its author to gather. Progress, in any learning process, is because of teamwork. Adding to your point of view the discoveries others have made is a knowledge-gathering activity all successful coaches have made.

Reaching our potential or making progress as instructors will require using discoveries and information that were not available in the past. These new findings are not based on any new laws or principles of the golf swing. The Laws of Motion and Principles of Physics and math that govern the golf swing have not changed.

We will only reach our potential when two things happen:

1. Gain a better understanding of how humans learn.
2. Know how to correctly approach the teaching process.

There is information available today that will show some *very specific* "Do's and Don'ts" about learning and teaching that was not available in the past.

In my view, our profession and the PGA not only have an obligation to use this new research, but use it to our full advantage, even if, for whatever reason, a particular instructor chooses not to.

To be excited by new information is the message. These new tools should not cause controversy or be intimidating.

In my view, controversy or intimidation *will diminish* as we continue to study, do research and then exchange information on teaching and learning.

I was once asked if I felt controversy was healthy when it came to discussing the subject of the golf swing itself. I answered *no* — that I liked the truth. Not my truth, or their truth, or his truth, but the truth — you see — when it comes to the Laws of Motion, like all other scientific information — they cannot cause controversy or arguments because they are provable.

Controversy is usually caused when one side has a misunderstanding about a subject or does not have all the needed facts — *it is an understanding, a growing understanding* of the Laws of Motion that all instructors who would like to improve their skill level should be looking for.

I assume when an instructor is trying to improve — he is doing so in order to pass the "benefits" along to his students.

Instructors should *not* be gathering information only for personal or internal study. That's the obligation of a Research Professional — as instructors we must communicate information to our students in the most efficient way possible.

So please *dare* to be creative. The Laws of Science that govern the golf swing cannot change, but the way we share these provable laws with our individual students can be very personal, innovative, and creative.

What is a coach's or instructor's most important quality? Is it *knowledge, good eye, communication, motivation, enthusiasm, or listening?*

As we make progress in teaching and coaching, we should be prepared to understand and be able to share information with our students in the following areas: *Warming-up, Atonement, Body-Awareness, Re-education, Relaxation, Concentration, Visualization (right side), Analytical Thinking (left side), Goal Setting, Dealing with Anxiety, Attitudes and Changes, Competition, Motivation, Skill Training Sessions, Pre-competition, Physical Conditioning, Diet, and Outside Interests.*

*Adapted from original.

Body Awareness

The relationship of the *body* and *mind* is the springboard for skill development. This could be called "Body Awareness" — Body Awareness is not only important, it is also the first step towards visualization, changing patterns of movement, and relaxation.

Coding the mental network with the events or movements of the golf swing will require development of a language that can *improve* communication between the mind and the body. But to educate we must first know how that network functions and learn its language.

Humans have had *to learn* much about behavior and body movements. Tieing one's shoes, riding a bike, walking, etc., are *not* movements that are programmed through instinct or wired into the nervous system.

From the day we are born we are continuously *learning how* to improve physical performance. This is unlike the newborn calf that can stand only a few hours after birth. Any physical activity we pursue with a purpose involves *learning how* to use our body. The easier, quicker, and more efficiently we are able *to learn,* the better and more effectively we will be able to perform. For the player, the first step in this process is learning how *to learn,* and for the coach, the first step is *learning how* players learn.

The *great* disadvantage of our open-ended learning ability lies in the fact that we can *learn to* do things in the *wrong way.* A coach taking on a group which has been trained poorly has to contend with this. So a big part of physical training involves recognizing and isolating bad habits in order to interrupt them.

Only then can more appropriate methods of using the body to achieve certain objectives be introduced. Cultivating good habits and eliminating bad ones is the way we learn and the main objective of all sports training.

When the body moves it sends thousands of signals every second to the brain which in turn collects, organizes, and distills the signals into a cohesive whole. The brain then makes decisions *(most are unconscious)* and sends signals back through the nervous system which breaks them down into simpler and more precise messages.

Psychology For Golf

- A good golfer plans for success
- Go with what got you there
- Players don't choke, they just over-try. *Jack N.*
- Two aspects — physical (ball striking) and mental (how under control you are)
- Manage your game better by concentrating on strategy and playing
- Play the shot at hand
- Give your best every time you tee it up, and then look forward to the next time
- Playing golf at a competitive level is a year-long project
- ROUTINE allows you to be on "automatic pilot" when on the course

(Borrowed from John Gerring)

- Do's eliminate Don'ts
- Busy feet make for lazy hands
- You only need to "see" the ball, not keep your head fixed
- Right knee is address position at the top
- Better to "get back of the ball" on backswing than try to "stay back" on the forward swing
- Teaching runs in trends — keep your own style
- Around, not up
- Level, not steep
- Backswing for position, forward swing for power
- Finish — club behind, arms bent, on right toe

Paradoxes

- Some things are learned better when we do not try to teach them
- Some things are learnable, but not teachable
- We think we learn from our failures and other people's success, but its the other way around
- Everything we try works
- We learn from calamities, not from virtues
- What is true for children is probably also true for adults
- Students can learn more from each other than from the teacher
- Don't try to improve the student, try to improve the situation
- We learn to play golf in winter and we learn to ski in summer
- We should change the mental (inside) first, then the physical can improve

*Material adapted from *See and Feel the Inside Move the Outside* by Michael Hebron

Appendix 11-D

MASTER PROFESSIONAL THESES PERTAINING TO GOLF INSTRUCTION

Catalog #	Author	Title Of Thesis
2900	Harold R. Calderwood	Thirty Years On The Tee
2901	Joe Davis	The Golf Swing As I See It, As I Teach It
2902	Donald Dunkelberger	The Psychology of Student Preparation For Golf Instruction & Its Bearing On The Student/ Instructor Relationship
2904	Gregory A. Fish	Teaching Fundamental Golf
2905	James D. Fogertey	How I Teach Golf
2907	John A. Gerring	It Ain't Much Pro — But It's All I've Got
2908	Robert A. Hamrich	How I Teach Golf
2909	Michael P. Hebron	See & Feel The Inside Move The Outside
2910	Robert E. Hickman	Super Golf — Simply
2912	Frank Kiraly	Teaching
2914	Donald A. Kotnik	Analyzation and Programming Keys For Sound Teaching
2917	Joseph E. O'Rourke	Learn The Basics For A Lasting Golf Swing
2918	Donald C. Perne	The Mental and Physical Aspects of Teaching The Golf Swing
2919	Jack R. Slayton Sr.	Keep The Swing Simple
2922	Bruce J. Sudderth	My Method of Teaching Golf
2923	Clarence I. Underwood	On Teaching Golf
2924	Michael Vucinich	Instructional Golf Development Program

2925	Thomas L. Weeks	Teaching The Beginning Golfer
2927	Gary Wiren	Human Factors Influencing The Golf Drive For Distance
2929	Robert S. Intrieri	The Golf School
2930	Jack Tindale	Psychology In Sport
2935	Gary Ellis	Junior Golf — Our Future
2936	John Joseph Gale	Teaching The Mind
2938	William W. Adams	My Approach to Teaching Golf
2940	Patrick "Rick" Martino	The Circle — The Swing — Rick Martino's Complete Teaching Method
2941	Robert E. Putt	The Teaching Methods of Bob Putt
2943	Craig Palmer	Using a Conceptional Approach to Reach More Students
2944	Billy Peterson (William W. Peterson)	Instruction and The Game of Golf
2952	James T. Christie Jr.	Teaching — The Beginner — This Teacher's View
2955	Charles W. Hackett	How I Teach Golf
2956	Don Ferrone	The Integration of Psychological and Physiological Components in The Golf Swing
2957	Rod Lidenberg	One Hour to Power: Weight Training for Better Golf
2958	Jerry Tucker	Golf and TLM (Training Log Method)
2959	William Davis	The Art of Chipping
2960	Kim Thomas	How to Practice Golf
2961	George Lewis	The Evolution of the Golf Swing
2962	William Baldwin	A Tournament State of Mind

Appendix 11-E

MONOGRAPH MATERIALS

The National Golf Foundation has compiled an extensive library of executive summaries. Averaging 2-4 pages in length, designed for those looking for specific information on a selected subject. Many summaries are extracted from major publications or chapters from these publications. Others are reprints of magazine articles or technical papers. Items related to instruction or learning are listed below.

Code #	Title
GC-57	Improving A Practice Range
ES-2	Golf Schools in the United States
ES-3	How to Become a Golfer
ES-4	Communication Between Instructor and Student
ES-5	The Role of the Golf Coach
ES-7	The Search for the Perfect Teaching Method
ES-8	A Movement Golf Unit for Grades 1-6
ES-9	Marking the Course for Competition
ES-10	A Beginning Unit for the Visually Handicapped
ES-11	NGF Education Service for the Golf Operator
ES-12	Some Thoughts on Coaching High School Golf
ES-13	Teaching Golf Without Clubs, Balls or Golf Courses
ES-15	Drills for Skills
ES-16	Directory of Colleges and Universities Offering Women's Varsity Golf
ES-17	Directory of Colleges and Universities Offering Men's Varsity Golf
JG-5	Start a Junior Golf Program — Build for the Future
JG-6	Minnesota's Junior Program — One of the Best

National Golf Foundation
1150 South, U.S. Highway One
Jupiter, FL 33477

Appendix 12-A

WHAT IS A GOOD INSTRUCTOR

by: Manuel de la Torre

A good instructor is one who gets positive results in a relatively short period of time. When a student takes a lesson of one half hour, he or she should see definite improvement within that one half hour. This does not mean a finished and polished swing can be obtained within that short time, but the student should see improvement.

How Can Such Results Be Obtained?

A teacher of any subject must have a thorough knowledge of the subject being taught. Teaching golf is no different. The instructor must have such knowledge and it must be based on sound principles. Everything involved in the production of a golf swing can be justified through two academic subjects, Physics and Geometry.

Such principles are not subjective feelings or ideas, they are not personal idiosyncrasies or guesses by the instructor, nor are they temporary Band-Aids.™ They are true, undeniable facts which can be expressed in very simple and understandable terms.

These facts are easily obtained and basically, they are full of common sense and are used in our everyday life time and time again.

Therefore, it is imperative that the student is made aware of this. That what he or she will attempt to do is not a foreign subject, where the principles and attitudes used are unique and exclusive to the golf swing with no connection to our daily life. Only a different type of implement or tool, a golf club, is going to be used.

Preparing The Student

The first lesson for a new student, beginner or otherwise, unless a young child, should be no less than one hour.

For a few minutes prior to commencing the lesson, a short explanation period must be conducted. This will accomplish several things.

1. It will inform the instructor of what the student's problem is from the student's point of view.
2. It will inform the instructor of what corrective procedures the student has applied.
3. It allows the instructor the opportunity to discuss with the student the information brought out in 1 and 2.

If the student is accurate in describing his or her problem which is very seldom, the instructor must then evaluate the soundness of the corrective procedures applied by the student. It is an unfortunate truth, that most of the corrective procedures applied by golfers actually produce the problems they try so hard to cure. At this point, the instructor must be very careful not to make the student feel he or she has committed a sin by using those corrective procedures. A demonstration of such procedures should be made by the instructor to show that those procedures do not correct the problem, and that in many cases they will augment it.

With beginning students, the approach has to be different because of their inexperience in the game. Good mental preparation is necessary with regards to distance and getting the ball in the air. Most beginners feel that the two most important things they have to do is first lift the ball in the air and second, to hit it hard to get distance. Dispelling these two ideas requires an attitude change achieved by explaining what gets the ball in the air and where power and distance come from. Once the students realize that the loft of the club, instead of themselves, is what raises the ball and that distance, since it is the result of good golf swings, is the last thing they should be concerned with. Their mental attitude can concern itself with the building of a good golf swing.

With both types of students, established golfers working on improvement and beginners, now well informed and mentally receptive to the instructor, they should hit a few shots for the purpose of diagnosing and evaluating by the instructor.

Diagnosis

Diagnosis is the basis of all corrective procedures. In order for an instructor to diagnose accurately, he needs to observe the student with a keen eye so that he can ascertain the problem without having to necessarily see the shot. In many cases, this can be determined in a practice swing. In addition to observing the student's swing, a thorough knowledge of cause and effect with regards to ball flight is imperative, for without it, it is impossible to diagnose correctly. There are cases where a particular type of ball flight can be caused by three or four different things, so if an instructor goes strictly by ball flight, he may not be able to help his student.

Many times a student presents several problems to the instructor and in such cases knowing what should be corrected first is extremely important. The instructor must have the ability of selecting the corrective procedure which will improve his student the most during that lesson period. By making this diagnosis, some of the other problems often seem to fade away. Great for the instructor and better yet for the student.

Understanding Of The Problem By The Student

Once the diagnosis has been made, the student must be made to understand it. Without understanding, the student cannot perform. How can the student be made to understand? There are several avenues of approach.

1. **Discussion**

   The instructor has the responsibility of being sure that the student has a very clear picture of the problem. Simple explanations are imperative, and they should be to the point. Anything which does not apply to the problem should not be considered.

2. **Communication**

   The instructor must develop the ability to communicate with his student using terminology which says exactly what he means, yet concise enough so that the student is restricted in the number of interpretations he can give that terminology. Such communication is the basis of teaching success.

   Clear explanations of the right and the wrong, with the student participating in these discussions, must be held so he or she can reason on their own and arrive at the proper conclusions.

3. **Correlating The Right And The Wrong**

   In order to correlate the right and the wrong, visual awareness is necessary. The instructor demonstrates the right and the wrong motions, and the student sees the difference.

   If the student cannot visualize, then the instructor must show the student the right and the wrong motions by swinging the club several times while the student is holding it. The student can now sense the difference and through this awareness, carries over a mental image resulting in visualizing what the proper motion is. It will be possible now for the student to produce both the right and wrong motions because he can correlate both movements.

4. **Pictures**

   All instructors should have cameras and video equipment. Stills through Polaroid pictures are excellent for identifying such problems which may arise in the address position, ball position, impact and the finish of the swing.

   Video or high speed movie cameras are excellent for motion problems, synchronization, hand action and for plane and plane change problems. Only slow motion and stop action should be used.

   Both of these aids promote understanding through actually seeing what happens in the student's swing.

What To Correct

In an attempt to have the student leave the lesson with a perfect swing, instructors often fall into the trap of overcorrecting. Overcorrecting in this case means correcting two or three problems in the same lesson period and it always turns out to be a grave error.

Only one correction should be made at any one point in time. The mind works much better when it has single concerns. With multiple concerns nothing gets finished, so solid improvement time is greatly lengthened.

Adaptability

Humans are very complex, with tremendous variability. Sometimes within the same period of instruction, they are subject to many different stimuli, goals and desires.

The principles which the instructor uses should never be compromised because they are the basis of his instruction. Within those principles, however, the instructor must have the ability to vary his methods of applying those principles to the corrective procedures in order to maximize the instruction efficiency.

It only takes a few shots by the student for the instructor to ascertain that the student did not understand what he or she is supposed to do, even though when asked it is seldom admitted.

When these situations arise, something in the instruction has to be changed. If not, the lesson will fail as both the instructor and the student will become frustrated. The student will lose confidence in the instructor. This must never be permitted to develop.

The instructor must have the ability to adapt his procedures to these problems. He can change a word, a phrase, the emphasis on a particular word or the way it is used in a sentence. He can change the mental emphasis from one point of the swing to another, or he can change the emphasis from a section of the swing to the entire swing.

Being able to adapt to the student and his performance could be crucial for a successful lesson.

Patience — Understanding — Enthusiasm — Encouragement

These four words summarize how the student evaluates the instructor aside from his knowledge. The instructor may have great knowledge but if those four words do not exist in his makeup, the student will feel rather uncomfortable and far from relaxed. When an instructor, by his actions, demonstrates to the student that he is willing to work with him or her and shows a calm and understanding attitude, it creates a friendly, quiet and patient attitude in that student. The student will be relaxed and very receptive, thus enhancing the performance. Developing a golf swing or a good golf game, new types of shots or more distance, requires a certain amount of time and patience on both sides.

Those who have played golf for many years tend to forget what they went through while learning to play and that should never be forgotten by any golf instructor. Every individual who desires to teach professionally should learn to play left-handed if he is a right-handed player and right-handed if he is a left-handed player. If a right-handed player, after three weeks of practicing left-handed, would go on the course and play 18-holes left-handed with three other normally left-handed players, he will then appreciate what his students go through when taking a lesson and attempting to learn the game. His patience, understanding and tolerance will indeed be enhanced.

Everyone enjoys being complimented when the compliment is sincere. Golfers are no different. Every lesson should have an extremely positive aura. Words such as "better," "almost," "great," "beautiful shot," "look where that one went," "you are doing great," should be used often, if they are really sincere expressions of the instructor's feelings. They should not be used merely for ego building.

Should the student miss some shots, and who doesn't, its importance should be minimized. The instructor should simply say, "just forget it, let's try again," thereby returning the student to a positive attitude.

If the instructor gets excited about his student's effort and performance, it will be passed on to the student and this breeds success. This type of encouragement can make the difference between a student working to improve or giving up. There is not one human being in this world who cannot improve with a good learning atmosphere.

Finalizing The Lesson

A couple of minutes before the lesson time is over, there should be a review of the lesson to make sure that what has been taught is clearly understood. The student should be asked.

1. Do you have any questions?
2. Do you understand what you have to do?
3. Will you repeat what has been presented and why?

The student should be advised of the benefit or writing down what the subject of the lesson was so that it can be used prior to future practice sessions and prior to playing a round of golf.

When the student is ready to leave, the instructor should thank the student and let him or her know that it was an enjoyable teaching experience, that it was a good lesson. Suggest that future lessons be scheduled to continue the progress shown "today" and pay their swing a compliment as they walk away. BE SINCERE, AND BE HONEST WITH THE STUDENT.

Appendix 12-B

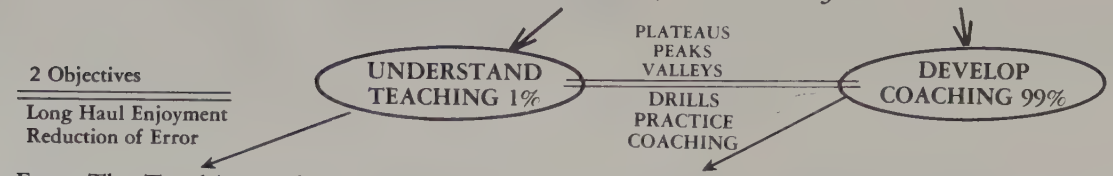
CONCEPTUAL TEACHING OUTLINE

by Bill Strausbaugh, Jr., Jeffrey Zachman and Michael Gillis

PHILOSOPHICAL

"We Cannot Teach You How To Play Golf, But We Can Teach You HOW TO LEARN To Play Golf"

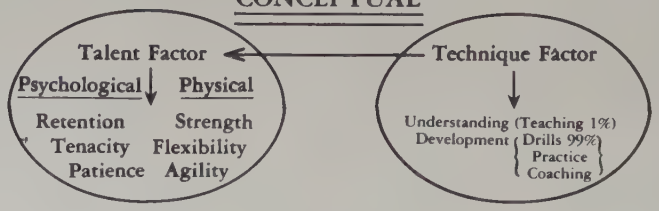
"What A Person's Mind Conceives, Their Body Can Achieve"

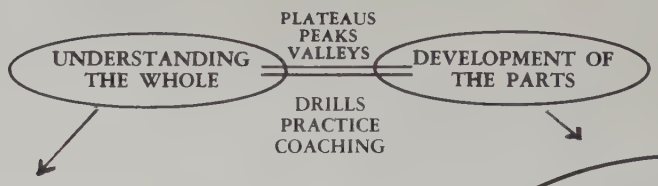


From The Teaching and Coaching Tee of Bill Strausbaugh, Jr., Jeffrey Zachman and Michael Gillis

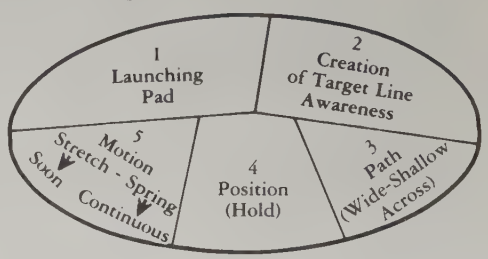
Name _____ Date _____

CONCEPTUAL





From the Proper Launching Pad **1** and the Creation of Target Line Awareness **2**, the Golf Swing is a Centrifugal Force Motion **5**, said motion **5** being in Path **3** and in Position **4** as related to the Target Line **2**.



Laws and Principles of Swing vs. the Conditions under which Swing is made

Pulling, PSM, Centrifugal Force and Circular vs. Pushing, Throwing and Lifting

Target Line Awareness vs. Still Ball and Mind's Eye vs. Optic Eye
Path vs. Circular Motion from Vertical set up
Position vs. Bilateral
Motion (Centrifugal) vs. Static Start
(The Inner)
(Swings the)
(Outer)

DEVELOPMENTAL

98%

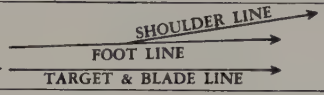
THE DISTANCE SWING — The 5 Parts, Building Blocks, Absolutes, Root Causes

1. Launching Pad

A. Holding the Handle — (Palm of Left Hand Looks Diagonally Downward, Feeling Handle in Back 3 Fingers & Beneath Heel Pad of Left Hand.
(Palm of Right Hand Looks at Target Line
(Caress vs. Choke
(Check Pts. — Vertical Hammercheck and Seeing Only the Tips of Fingers on the Right Hand.

B. Aim, Alignment and Optics

Approach the Target Line from Behind →



C. Set Up (The Launching Pad — the Platform — The Stake) (The Slingshot Analogy) (Crimp vs. Volarize) (Hands Even with Shaft to slightly behind) (Concave-Convex to Convex-Concave) (Drag-Lag) (The Trigger) (Ball Positioned off Heel to Hosel)

2. Target Line Awareness { Mind's Eye vs. Optic Eye — The Glance at the Target Shaft — Relating the Motion to the Target Line vs. Where Ball Is Sitting — See It Flying, Not Sitting. You cannot Make a Motion to the Target Line and Hit at the Ball at the same time. Ball on Club Face. Jai Alai. Place in Tennis vs. Strike in Golf. Target Shaft Relating to net in Tennis. The Target Line is what the game is all about. Your Motion must become a conditioned response to the Target Line. Your Motion is only as good as where your mind's eye is. Mentally engaged with Target Line and physically relaxed. Total focus on Target Line. }

2%

3. Path { SHAPE / SKELETAL } 3 Contiguous Circles — On, Against and Wide to the Target Line to Inside, Underneath and Shallow to the Target Line to Across the Target Line "Tail Wags Dog."

↓ Direction

1 — Dry Run in Front of You.
2 — Watch the Club Face as it is Held on, against and wide to the Target Line.
3 — Watch the Club Shaft as it is Returned Inside, Underneath and Shallow to the Target Line (Hold Being Maintained) to across the Target Line.
4 — You didn't see anything but the motion itself.

4. Position — Developing the strength and agility in the upper left quadrant to keep the Club Face and the Club Shaft from getting inside the left forearm. "Jailor Vs. Jailee". Towel Drill.

TENNIS
BASEBALL
FOOTBALL

5. Motion / Flesh { STRETCH & SPRING } Must Be Related to the Target Line, Centrifugal, Continuous and Circular. Let the Coach See Your Tie Move Soon and Toward Horizontal Target Line and Away From the Target Line. "Dog Wags Tail." → Distance Dry Run from the Forefront.

THE DIRECTION SWING — The 3 Parts, Building Blocks, Absolutes, Root Causes

1. Triangle (Intact and Pre-Set)
2. Track (In Track) (See Track, Not Ball)
3. Target (Pointer Dog) (Feedback) (Envision Pointer Dog Position in Mind's Eye Prior to Shot and Perpetrate Same)

"YOUR PERSONAL ROAD MAP"

Once you understand your root causal problem, and in order to counter attack the root causal problem and go on to enjoy a move repetitive golf swing action, you must practice and drill; Down the Shaft, Skeletal and Bare bones approach with minimal motion at Second Serve (Tennis) force and tempo.

1. Holding the Handle
   Aim
   Set Up _____
2. Target Line Awareness _____
3. Path _____
4. Position _____
5. Motion _____

Appendix 12-C

SAMPLE ERROR CORRECTION SECTION

from

GOLF and TLM (Training Log Method)*

by: Jerry Tucker & Bill Holden

Fairway Woods — TLM - Lesson I

A fairway wood shot is played off a fairway, rough, or hazard, keeping in mind that anything less than an excellent lie calls for a 5-wood or 7-wood (or even a middle iron). The shot involves a full swing and is primarily for distance (generally 180 yards or more), although some degree of accuracy is desirable.

Technique

The fairway wood shot is very similar to the long iron shot with respect to ball position, general swing thoughts, and angle approach. The ball is positioned opposite the left heel, with inside of the heels almost at shoulder width for the stance.

After following a consistent pre-shot routine, the player should start the club away from the ball low along the ground and slightly to the inside as the shoulders begin to turn away from the target. Approximately two-thirds of the body's weight should transfer to the inside of the right foot at the top of the backswing. The player should feel that he has unhurriedly reached the top of the swing, coiling fully with his shoulders before unwinding on the downswing. As the large muscles of the legs, back and shoulder then uncoil, the hands and club will automatically follow through the hitting area, whirling freely at a high clubhead speed. This powerful momentum should occur naturally as a result of the timing of the swing, not as a strained effort for power.

Again, the player need not consciously lift the ball into the air, as the design of the fairway woods, especially a 5-wood or more lofted club, will launch the ball at a desirable angle even if the player swings downward into the impact area, which he should, in fact, do. The fairway wood swing is characterized by a downward sweeping motion on the forward swing, much like the long iron swing. The player might take a very slight divot as a result of this downward motion, but a slight bruising of the grass is more appropriate.

Strategy

The goal of the fairway wood shot is to advance the ball on long holes farther than an iron shot possibly could. If the green is reachable, the shot should at least place the player in close proximity to it.

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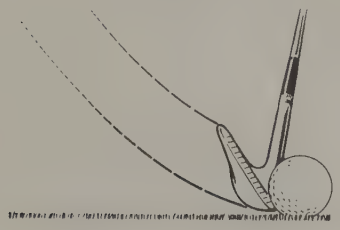
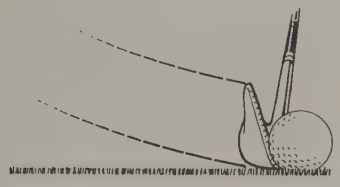
St. Louis, Missouri 63144

Angle of Approach

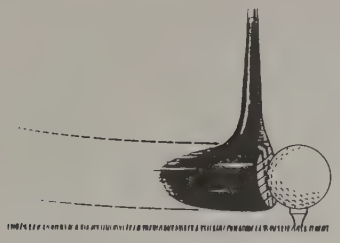
It varies with the weapon.



Our steepest angle should be created with wedges and short irons. *This will help us impart maximum backspin, even from difficult lies.*



With the middle irons, *we should employ a downward sweep that trusts the loft of the club to get the ball airborne out of a variety of lies.*



With the driver, *the angle of approach should be very shallow (level) as we wish to hit the ball on a line-drive trajectory.*

Player Faults — TLM - Fairway Woods

Log I

No. _____ Player _____ Pro _____

Overall Handicap _____ Shot Handicap _____ Date _____

(Degree Off Objectives:) (1) Slightly (2) Moderately (3) Substantially

S:xx The following supplemental lesson log(s) were used in conjunction with this lesson:
- _____ S:su - Set-Up
- _____ S:bs - Backswing
- _____ S:ds - Downswing
- _____ S:fs - Forward Swing
- _____ S:xx - Other

2h Player does not hold club at end (fat part) of grip to get maximum swing arc.

3a Ball is positioned too far back/forward in the stance.

4a Stance is too open/closed.

4b Stance is too wide/narrow.

7m When shifting to inside of the right foot on the backswing, player sways, and transfers weight to outside of the right foot.

7n In trying to prevent swaying on the backswing, player has reverse weight shift, angling upper body toward the target and shifting weight to the left foot.

7o Player sways excessively on backswing/forward swing.

7p Player shifts weight properly to inside of right foot, but "hangs back" on that foot during forward swing.

7r Player locks right knee on backswing, raising up and losing the fixed axis.

11v Player takes the club inside too quickly on the backswing.

11w Player takes club back too far and low along target line.

12a Player "lifts" club on backswing.

15s Angle of approach to the ball on forward swing too steep, and not a sweeping motion (Driver).
19q Player "quits" on forward swing, just prior to impact.
20k Player correctly starts forward swing by leading the lower body and pulling down with the back of the left hand (immediately after starting down) to get crossover.
22b Swing tempo is good on backswing, but rushed on forward swing.
22c Greatest acceleration on forward swing is halfway to ball, rather than just past where ball lies.
51a Player slides swing axis (base of neck) past ball on forward swing, rather than unwind around that axis, keeping his head behind a vertical line to the ball.
51b Base of player's neck drops or raises during the forward swing.
51d Player takes head "up and away" on backswing and "down and toward the target" on forward swing.
59b Player's swing force is excessive on forward swing/backswing/both.
69b Left shoulder is not out in front of the right on forward swing.

Other: _____
_____
_____
_____
_____

Good Day ( ) or Bad Day ( )

Codes(s): _____ _____ _____ _____ _____ _____

Objectives for Next Lesson: _____
_____
_____
_____ Revision #1.

Ball Reactions — TLM - Fairway Woods
Log I

Ground Hardness ( ) Soft ( ) Normal ( ) Hard

(Degree Off Objectives:) (1) Slightly (2) Moderately (3) Substantially

15* Initial direction of the ball is usually:
a. ____ Left.
b. ____ Right.
c. ____ Straight.

15* Regardless of initial direction, the ball usually curves:
d. ____ Left.
e. ____ Right.
f. ____ Goes Straight.

15* Player's divot usually points:
g. ____ Left.
h. ____ Right.
i. ____ Straight.

15* Player's divot is usually:
j. ____ Behind the ball.
k. ____ Under the ball.
l. ____ After the ball.
m. ____ Too deep.
n. ____ Inside (too close).
o. ____ Outside (too far away).

15* After landing, the ball kicks:
p. ____ Left.
q. ____ Right.
r. ____ Goes Straight.

15w Player hits his fairway woods the following distances: (on the fly)
__ wood _____ yards.
4-wood _____ yards.
3-wood _____ yards.
2-wood _____ yards.

15x Roll after landing for the fairway woods is as follows:
__ wood _____ yards.
4-wood _____ yards.
3-wood _____ yards.
2-wood _____ yards.

15* Ball trajectory is usally too:
y. ____ Low.
z. ____ High.

*Be sure to note the alphabetical letter.

Other: _____
_____
_____
_____

Good Day ( ) or Bad Day ( )

Codes(s): _____ _____ _____ _____ _____ _____

Objectives for Next Lesson: _____
_____
_____
_____ Revision #1.

Fairway Woods — TLM - Corrections
If the ball is mis-hit (in general):

The vast majority of golfers stop improving at a certain level simply because they fail to understand their mistakes. Without this understanding, based essentially on "Ball Flight Laws," there is no way to correct faults properly and improve one's game.

So, before discussing the specific causes and recommended corrections for mis-hits, a brief summary of how "Ball Flight Laws" are applied in the TLM lessons is presented here. (1) In G, "Short Irons," clubhead path at impact is discussed as the primary swing element in determining the starting direction of the ball's flight. (2) In H, "Long Irons," clubhead path is continued, but is treated as secondary to clubface alignment and "cross-over," the primary elements in determining the subsequent curve of ball flight. (3) Lesson I, "Fairway Woods," continues with crossover as primary, but also emphasizes checking for proper weight shift and squareness of contact, while introducing angle of approach into the ball. (4) Finally, in J, "The Driver," we focus on making sure the angle of approach is shallow, and also on checking weight shift and clubhead speed. In all four lessons, however, we stress how correct clubhead path usually leads to correct clubface alignment and crossover. With all this in mind, let's discuss some specific mis-hits of fairway woods, and their recommended corrections.

15l. If the ball is topped:

Strive to reduce body tension by loosening grip pressure. Once you top a fairway wood, you really have to watch for tightness creeping in on your next few shots, so relax grip pressure, get fluid, and keep the approach into the ball shallow (not steep). Remember that even a tight lie, with little grass under the ball, still leaves room for error. Again, let tension ooze out of the shoulders, adopt a light grip pressure, and allow the design of the club to get the ball airborne.

> *Remember also that a good hit with a 5-wood will go farther than a mis-hit 3-wood shot.*

151. If the ball is hit thin on a fairway wood shot:

You probably decreased the amount of flex in your knees during the swing, or raised your fixed axis (base of your neck) in an attempt to get the ball into the air. Since a fixed axis, straight left arm, and constant knee flex are all vital parts of your swing radius, straightening the knees results in a topped, or at least a thin, shot. So work to keep a fixed axis and knee flex constant throughout the swing. In some cases, where you might be "lifting" the ball subconsciously, trust the design of the club to bring the ball up, even though you are hitting slightly downward into the ball.

15j. If the ball is hit fat on a fairway wood shot:

You are probably suffering from an incorrect weight shift. Either you have a reverse weight shift or are failing to shift your weight toward the target during the forward swing.

If you have a "reverse weight shift," you are actually leaning to the left (or "holding left") at the top of the backswing. This is exactly the opposite of what is desired: weight shifting to the inside of the right foot on the backswing. Many players seem to create a reverse weight shift when trying to prevent an incorrect weight transfer to the outside of their right foot. In doing so, they overcompensate, shifting as much as two-thirds of their weight back to their left foot. Once this occurs, the only place for the weight to go on the forward swing is onto the back foot, creating a steep angle of approach and a weak, fat shot that usually goes off to the right.

The reason this problem may not have shown up until now is that you can often get away with a reverse weight shift when playing shorter irons, because a steeper angle of approach is acceptable. Also, the shaft length of a short iron allows many players to "manhandle" the club, and even if they don't shift their weight properly, they can hit a 9-iron, for example, 110-120 yards with a certain degree of accuracy. Basically, their hand-eye coordination gets them through the shot. With wood shots, however, where the swing is a little longer and you're simply trying to bruise the grass with a shallow angle of approach, a reverse weight shift is more detrimental. In short, you are forced to make a better golf swing with proper weight shift to hit a good shot with a fairway wood.

To prevent a reverse weight shift, then, kick the left knee in behind the ball (to the right of it) on the backswing. This assures shifting about two-thirds of your weight to the right foot without transferring it to the outside. Then simply swing freely, leading the forward swing with the lower body, making sure not to move your head past the ball.

If you don't understand that the real problem here is failing to get your weight to the back foot on the backswing, you are going to punish yourself unmercifully because, as stated above, you will end up finishing on the back foot. Unfortunately, some well-wishing friends who tell you that you are not shifting your weight forward enough are unaware that your real problem is not shifting your weight back properly on the backswing.

Other players actually do shift their weight to the right side on the backswing, but then leave it there as their upper body swings forward, keeping their center of gravity well behind the ball, which causes a fat shot. In either case, start the swing back with your hands and arms, letting your body follow on the backswing until approximately two-thirds of your weight is on the inside of the right foot. Your lower body should then initiate the forward swing with the shoulders and arms trailing, so that at the finish position, about 95 per cent of your weight is on the outside of the left foot. Keep in mind, however, not to sway toward the target on the forward swing; instead, unwind around your fixed axis, without sliding your head past the ball.

15 a+e. If the starting direction of flight is left, and the subsequent curve is right:

Since this reaction, as well as the other eight possibilities of ball flight, are discussed thoroughly in Lessons G and H, they will not be discussed at length here. Since the corrections for direction and curve with fairway woods are the same as those for short and long irons, simply go back to the irons, if necessary, to review the laws on clubhead path and clubface alignment at impact. This ball reaction is mentioned here, however, mainly because it's the most prevalent among club-level players, and also because a few unique elements of swinging longer clubs are worth noting here.

Again, an outside-in swing path is the cause of the starting direction being left. On longer woods, the reverse weight shift can be an additional cause, as shifting to the right foot on the forward swing tends to throw the club to the outside. To prevent an outside-in forward stroke, then, shift weight (almost "sway") to the inside of your right foot on the backswing, then keep your left shoulder out in front of the right on the forward swing. Feel like the left shoulder is obstructing your view somewhat as you look toward the target. Think of this only during practice, however. With only 1-½ seconds to swing, it is important to keep overall swing concepts of tempo and fluidity in mind, rather than thinking of pure mechanics or individual parts of the body. If you think of too many specific details when playing, your swing will probably break down.

As with iron shots, lack of crossover is the cause of the ball curving right. This is more common with wood shots because it is more difficult to cross over with longer clubs. Usually, we recommend working on swing path first, and then crossover, because clubface alignment tends to "fall into place" once the swing path is correct (assuming inside-to-out is the desired path). However, with wood shots, it is sometimes useful to work first on the crossover, especially if a player has never intentionally executed one, or even heard of the term. The following drills, then, may prove useful in giving you the "feeling" of crossover. Keep in mind, however, that a reverse weight shift also makes the crossover more difficult, and should be remedied before practicing crossover.

(48) *"Triple Overlap Drill"* Overlap the last three fingers of your right hand over the left to encourage left-side control and develop strength. Start with the 9-iron, and avoid the tendency to overuse your right arm and shoulder.

(49) *"General Crossover Drill"* Try for 3 out of 4 balls starting to the right, with an inside-out clubhead path and no crossover. Make sure you are aligned properly, without cheating by closing the stance. Then do 3 out of 4 more shots with crossover primary, keeping path secondary (or even forgetting about it), making sure the toe of the club passes the heel just before impact. Finally, go for 3 out of 4 balls with an inside-out path and crossover.

One final note on crossover: When a player's body gets too far ahead of the ball on the forward swing, he "blocks" the shot, thereby inhibiting crossover. On the other hand, staying behind the ball too long (or "hanging back"), facilitates crossover, but should be avoided since it encourages hitting off the back foot. As stated earlier, this creates an improper weight shift, preventing you from using your body efficiently to transfer weight to the left side. The key on the forward stroke, then, is to find the happy medium between "blocking" the shot and "hanging back": then you can use both the power muscles AND crossover.

To summarize: the idea of swinging freely with good path and crossover is to turn away with your shoulders low and to the inside with the left-hand-to-shoulder unit turn (putting you into a good position on the inside of the right foot), then return to the ball on that low and inside path. A good player, swinging his best, turns behind a vertical line to the ball, and if coiled up properly, doesn't worry much about the forward swing. All he does is unwind. If you unwind naturally, with no thoughts of distance, or even of controlling the path, you will get that nice inside path with a natural compensating crossover. If there is significant anxiety or rushing, however, or there is a conscious attempt for distance, you will probably throw the forward swing outside its normal path, often negating any crossover and causing a slice.

15z. If the ball is hit too high on a fairway wood shot:

The problem is probably in your set-up. Either the ball is positioned too far forward in the stance or your hands are positioned behind the ball. As long as the ball is hit solidly, do not consider this a serious problem, as good height is desirable in most situations. However, if the shot is against the wind or over very hard ground, you might move the ball back slightly in your stance to gain a more boring trajectory.

15y. If the ball is hit too low on a fairway wood shot:

You may be positioning the ball too far back in your stance. This has the effect of hooding the clubface, which reduces the club's loft substantially. You might experiment with the effects of ball position on shot trajectory, depending on the existing conditions.

Finally, if your shot pattern is erratic on fairway wood shots, you may have excessive head movement and should strive to swing around a fixed point, whether it be your head or the base of the neck. Also, work on left-side control, which is one of the keys to consistent shot-making. A player who is right-side dominant must have superior timing each day to make his swing work efficiently.

Relax grip pressure and loosen tension in your shoulders, almost feeling chills or a shiver down your spine.

During the downswing, visualize the perfect clubhead path at impact — such as the 1:00 position.

Lead the forward swing with the legs, then start down by pulling with the back of the left hand.

After starting down with the back of the left hand, remember to come in with the right hand to get the proper crossover.

Keep swing force in the 75% range.

The crossover is easier when grip pressure stays relaxed and your hands do not pass your lower body during the forward swing.

Appendix 12-D

A PRIMER ON GOLF SWING ERRORS WHEN RELATED TO LAWS, PRINCIPLES AND PREFERENCES

Error — *Slicing*

(Any shot which curves from left to right for a right handed player)

Causes Related to:

Grip

When the hands are positioned in an open faced manner, that is rotated counter-clockwise (formerly called a "weak grip"), the face will tend to be returned open. Too much grip pressure can retard the release, not allowing the clubface to square.

Aim

Aiming to the right of the target will encourage an outside-to-in swing path and likely produce clockwise spin on the ball.

Set-up

Standing too close to the ball can cause heeled shots which will tend to fade or slice. Standing too far away can make it difficult to square the clubface. If the ball position is too far back, the face may be open; too far forward, the path will probably be coming from outside-to-in.

Arc Length

Too short a swing, particularly on the long clubs, does not allow the clubface time to square up, leaving it open at impact.

Arc Width

Shortening the arc in the impact area by collapsing the left arm will draw the club-face inward and tend to block its rotation, leaving it open.

Dynamic Balance

Too much weight on the left foot at the top of the backswing (a reverse weight shift) will influence the weight toward the right side in the foward swing, causing the club's path to come from out-to-in which can produce slice spin. Transferring the weight too far on the left foot, in advance of the club, in the forward swing can cause the face to be open. Also, failing to transfer the weight to the left foot during the forward swing can produce an out-to-in path.

Swing Center

Moving the swing center too far to the left will tend to keep the face open; moving toward the ball to heel the shot; and to the right, to cut across from out-to-in, all encouraging conditions which produce a slice.

Plane

In itself, the tilt of the plane angle does not produce a slice, although upright swings will always favor that pattern more than flat swings. The direction of the plane, which is the swing path, will encourage a slice whenever it is travelling out-to-in accompanied by a face position open to the path.

Position

A cupped wrist position at the top of the swing will generally produce an open clubface if the grip has been a standard two knuckles in the left hand.

Lever System

An influence only when it encourages an open face or out-to-in path.

Timing

Any technique error which causes the clubface to be mistimed and left open will produce slice spin. It could come from almost any of the other principles.

Release

Failure to return the clubface to square, often due to tension in the arms and hands, will inhibit the release and send the ball curving to the right.

Connection

When the body outraces the arms, so the swing becomes "disconnected" the face will be left open unless some compensatory move with the hands or forearms is made.

Impact

Anytime the clubface is open to the path at impact the shot will curve left to right for a right handed player. Letting the left wrist collapse so the back of the left hand faces the sky (while not letting the left forearm rotate to its address position) are examples of a slice producing impact position.

Error — *Hooking*

(Any shot which curves from right to left for a right handed player.)

Causes Related to:

Grip

When the hands are positioned in a closed face manner (rotated clockwise, formerly, "strong grip"), the face will tend to be returned closed. Grip pressure that is too light can cause the player to lose the left hand control resulting in a dominating right hand and duck hook. Also gripping over the end cap can encourage this error.

Aim

An alignment of the feet, hips and shoulders (particularly the shoulders) to the right of the target will encourage an inside-to-out swing path. Aiming the clubface left at address will more than likely produce a clubface that is also aimed left at impact.

Set-up

By placing the ball back in the stance an inside swing arc to the ball is created. Tilting the center of rotation behind the ball at address and keeping it there during the swing will encourage an inside arc as well.

Arc Length

(little effect)

Arc Width

When the width is shortened slightly at impact the ball may be hit near the toe resulting in a toed hook.

Swing Center

Keeping the swing center too far behind the ball can produce an inside path and hook the ball providing the clubface is closed as well.

Dynamic Balance

Failing to shift the weight to the left will keep the swing center behind the ball and tend to produce an outside-to-in path which will result in a pull hook if the face is closed.

Lever System

(little effect)

Timing

If the clubhead is allowed to release too early and the toe passes the heel it will close the face.

Position

The face will be closed at the top of the swing if the player has taken a normal two knuckle grip and has bowed the left wrist at the top.

Plane

A flatter swing plane will make it easier to hook the ball than an upright one but it doesn't guarantee a hook. A layed off position at the top of the swing flattens the plane but hooks the ball not for this reason but because the wrist is bowed and the face closed.

Release

An exaggerated rotation of the forearms in attempting to produce a release will cause a hook.

Connection

Keeping the elbows, particularly the left, in closer proximity to the body promotes clubhead rotation and more of a chance to hook.

Impact

If the wrist has broken down at impact or has bowed too much or been arched too tight it will close the face.

Error — *Topping*

(A shot that has overspin as a result of being hit above its equator with the bottom portion of the clubhead.

Causes Related to:

Grip

Look for a grip that is dominated by the right hand, placed too deeply into the palm, causing the left arm to shorten and the clubhead or body to come up at impact.

Aim

(little effect)

Set-up

Topping is the frequent result of placing the ball too far forward in the stance. Occassionally a player will top a ball because it is too far back, but this is rare. Also, a ball played too far away from the player makes it easy to top.

Arc Length

If the backswing is too long the player will tend to raise his/her swing center. If not returned to the level it was at address the ball will likely be topped.

Arc Width

Shortening the width of the arc in the impact zone by bending the left arm is a very common cause of topping.

Dynamic Balance

Failure to return from the right side to the left, in the forward, swing results in the swing arc bottoming out too soon and coming upward. By the time it makes ball contact it's above the ball's equator.

Swing Center

Whenever the center moves vertically, away from, or behind the ball, it pulls the swing arc out of position and encourages a topped shot.

Plane

(little effect unless the plane is extremely flat, which makes the angle of the approach shallower and easier to strike the ball on top)

Position

(little effect unless as in the example above, the club is allowed to get overly flat)

Lever System

By allowing the left arm to bend excessively, thus causing a third lever, the player may find it more difficult to maintain arc width at impact. However, attempts to keep the upper lever (the left arm) perfectly straight may lead to tension which will pull the shoulders and club up.

Timing

A premature release of the wrist cocking will cause the clubhead to bottom out too soon and be ascending by the time it reaches the ball.

Release

(see TIMING, above)

Connection

(see TIMING, above)

Impact

If one of the previous errors has been committed, the result will be an impact in which the upper half of the ball is struck with either the leading edge or sole of the clubhead.

Error — *Chunking*

(Striking the ground prior to contacting the ball so as to reduce clubhead speed.)

Causes Related to:

Grip

A grip which because of its positioning in the right palm puts too much dominance in that hand frequently destroys the timing and causes the clubhead to release too early, striking the ground behind the ball.

Aim

A player who aims to the right will instinctively "hit from the top" in an attempt to get the ball travelling more toward the target.

Set-up

Playing the ball too far forward in the stance causes the bottom of the arc to be reached before the ball is contacted.

Arc Length

Too short a backswing can cause chunking if the player rushes back to the ball with the arms and hands out of sequence in an attempt to gain more distance. Also, if a player has had a short backswing and it has been lengthened, the initial tendency is to hit behind the ball, since the previous timing from the shorter swing is still present.

Arc Width

If in the Set-up position the player has not extended his/her arms but does so during the swing, the clubhead will strike the ground first, unless some other compensating move is made.

Dynamic Balance

One of the most prevalent reason for striking the ground before reaching the ball (chunking) is failure to transfer the weight from right foot to the left foot during the forward swing.

Swing Center

Whenever the rotational swing center is located to the right of the ball in the forward swing the tendency will be to hit the ground behind the ball. (An exception is when the ball is teed, thus allowing a margin of space below the level of the ball.)

Plane

The flatter the swing or shallower the angle of approach the greater the likelihood that the ground may be struck before the ball.

Position

An open faced position at the top of the swing will encourage an earlier release and a greater chance of chunking.

Lever System

Whenever a third lever (bending the left arm markedly) or a fourth (cupping the left wrist) is added to the preferred two lever swing, there is an increased possibility of mistiming and premature release.

Timing

The number one cause of chunking is allowing the clubhead to pass the hands (mistiming), the lower lever passing the upper lever, before reaching the ball.

Release

An early release is a form of mistiming (see TIMING above)

Connection

When the arms and hands outrace the body, the connection, or correct relationship of body segments toward one another, is lost and it becomes a form of mistiming.

Impact

The normal transfer of energy that should come from clubface and ball contact is substantially reduced as the clubhead is slowed from contact with the ground, plus the grass and earth provide a cushion, both which reduce the distance the ball travels.

Error — *Skying*

(Contacting the ball with the upper portion of the clubhead so as to send it high and short)

Causes Related to:

Grip

Look for an overly dominant right hand grip which would encourage an early release and a steep angle of approach to the ball.

Aim

Aiming to the right would encourage an early release and steep angle of approach that could produce a skied shot.

Set-up

Playing the ball back in the stance will encourage a steep descent which can produce a skied shot.

Arc Length

Any swing that produce a steep angle of approach will encourage a skied shot. A swing that is too long due to an exaggerated, bent left arm or slack wrist will tend to reflexively release early and make a steep descent to the ball. A swing that is too short and seeks power, may also lose its sequence, therefore, releasing too early.

Arc Width

If at address on a tee shot, the arms are not extended but, they are extended at impact, the ball will likely contact the upper portion or top of the clubhead particularly if the ball is teed in the air.

Dynamic Balance

If the weight transfer is too far to the left in the forward swing the angle of approach will be steepened, encouraging a skied shot.

Swing Center

If the swing center goes past the ball toward the target, the forward swing will be steepened.

Plane

A more upright plane will tend to produce a greater number of skied shots than a flat plane.

Position

A cupped wrist, if it produces an open clubface position, would encourage more frequent casting of the club from the top and steeper descent.

Lever System
Creating additional levers in the arm and wrist complicates timing and tends to produce early release.

Timing
When the lower lever (the club) is thrown out of plane by an early release, it steepens the approach angle.

Release
(see TIMING, above)

Connection
When the arms are lifted out of position or "disconnected," they are more likely to return with greater descent then desired.

Impact
When the forward swing is too steep on a tee shot, the ball may contact the top part of the face resulting in a glancing blow sending the ball upwards and producing little distance.

Error — *Shanking*
(Striking the ball on the hosel of the club, so that the ball flies immediately to the right.)

Causes Related to:
(Note: All causes here relate to an outside-to-in shank)

Grip
Look for a right hand that is riding too high on the shaft (an open faced grip), which in the forward swing pushes the right elbow away from the body and the club path outside.

Aim
Aiming to the right will encourage an outside-to-in path, which produces most shanks.

Set-up
Standing too close to the ball at address and having the arms further extend during the swing, can cause a shank.

Arc Length
A contributing factor only if due to its length, or lack of length, it causes the player to throw the clubhead outside the target line, presenting the hosel to the ball.

Arc Width
If in the forward swing the arc width expands from that in the backswing, the club can be thrown outside.

Dynamic Balance
A reverse weight shift will encourage an outside-to-in clubpath.

Swing Center
Moving the swing center toward the ball is one of the more common reasons for producing a shank.

Plane
Most shanks come from an abrupt steepening of the shaft angle on the forward swing.

Position
An open face position at the top of the swing would be more conducive to producing a shank.

Lever System
More levers create more of a tendency to produce clubhead throwaway from the top of the swing.

Timing

Letting the hands release prematurely, so the clubhead is thrown outside the target line, is the number one reason for shanking.

Release

(see TIMING, above)

Connection

Allowing the arms to leave their correct relationship to the body and be thrown away from it, could produce a shank.

Impact

The ball makes contact with the hosel, not the face, because the arc of the clubhead has moved beyond the target line, away from the player. So any moves in the swing which contribute to an exaggerated out-to-in path would be counter productive.

Error — *Pushing and Pulling*

(Pushing and pulling are path errors primarily related to the following principles):

Aim

Aligning the body either to the left or right of the target.

Set-up

Standing too far from the ball.

Dynamic Balance

Too much lower body lead drops the clubhead path inside-to-out, too little encourages and outside-to-in path.

Timing

An early release contributes to an outside-to-in path. A late release, an inside-to-out path.

Position

If at the top of the swing the club shaft crosses the target line, the path will want to return from the inside. If the shaft is "layed off" it will want to travel to the outside.

Appendix 12-E

HOW TO BECOME A GOLFER

A Message that Every Player of the Game Should Hear
NGF ES-3

Golf is a lifetime activity in that participation can be rewarding at any age. Early exposure to the game — in *all* its dimensions — will insure lifelong benefits in return.

In addition to skill, success in golf lies in sportsmanship and fair play. It is a game which revolves around the concept of courtesy and proper conduct. It is a game which requires self-discipline — in the sense of control of individual emotions and also in the sense of integrity, because many of its rules depend upon self-enforcement. The true "golfer" is one who commands respect not only for his or her actions on the course but also for the awareness of correct procedures in the clubhouse. Such respect is an outgrowth of one's self respect and is nurtured by concern for the following:

I. **Knowledge of and Adherence to the Official Rules of the Game.**

Rules make it possible for everyone to play the game on the same basis of fairness and wholesome spirit. Fair-minded, good sportsmen would not knowingly break the rules. **The "Golfer" studies the Rules...then develops a sound working knowledge of them.** By observing the "golfer's" adherence to rules, other players will follow his or her example.

II. **Personal Conduct**

The myriad of playing situations which confront the player during a round pose a constant test of personality and character. The GOLFER realizes this and accepts moments of discouragement as part of the game's challenge.

III. **Care of the Course**

The average golf hole requires thousands of dollars to construct, and additional thousands to maintain. In recognition of such costs, acts which reflect concern for course maintenance can be readily observed in the behavior of a GOLFER. Attention to the following matters will require special effort by the beginning player, but will soon become habit comfortably incorporated into the normal sequence of play.

The GOLFER Always:

- — Hits from the designated tee area.
- — Replaces divots, even if only a small amount of turf has been removed.
- — Rakes the sand to smooth footprints and clubmarks following a bunker shot.
- — Repairs ball marks on the putting green — often times more than just one's own.
- — Refrains from scuffing the green with spikes and does not walk near the edge of the cup.
- — Places the bag of clubs *off* the green and nearer the next tee before putting.
- — Refrains from pulling a cart across edges of the green.
- — Follows designated pathways for the motorized golf car, being careful not to drive over teeing grounds or onto apron areas of the green.
- — Discards litter in proper containers.
- — Leaves pets at home.

IV. **Safety**

The act of compressing a hard ball with a clubface traveling in the range of 100 miles per hour occurs several times during a round. When crowded, the golf course becomes acres of dangerous ground — UNLESS each player is alert.

The GOLFER Always:

— Waits until players ahead are well out of range before hitting, taking extra precaution on "Blind" holes

— Shouts the warning cry "FORE" whenever a shot astray could endanger others.

— Takes practice swings judiciously, where space is clear of obstructions and other players.

— Observes out-of-bounds areas designated within the course premises which prohibit play of a ball on an adjacent fairway.

— Leaves small children at home.

V. **Pace of Play**

The game of golf was designed to be played with continuity of effort. Its challenge calls for sustained concentration combined with the physical ability to execute the swing under scores of playing conditions. The GOLFER determines the pace at which he or she performs best and which is compatible with fellow players.

The GOLFER Always:

— Walks to the ball with dispatch. Plans club selection and shot execution while approaching the ball or waiting for others to hit.

— Always is ready to hit in turn.

— Sets a pace which maintains a comfortable distance between groups ahead and those behind. Should the distance of a hole exist between you and those ahead of you, allow faster players to play through. To avoid congestion on the tee area of par 3 holes where appropriate, upon reaching the green allow those waiting on the tee to hit their shots.

— Learns the habit of following the flight of the ball closely, marking the point where it lands so that excessive time need not be taken to determine its location. If ball is thought to be lost or out-of-bounds, hits a "provisional ball," following USGA rules procedures.

— Is discriminating in the number of practice swings taken. Avoids giving one's self or others a "lesson" while on the course.

— Upon reaching the green leaves bags, carts or motorized golf cars nearer the next tee — never in front of the green.

— Practices efficient handling of the flagstick to shave seconds from "green-time." Rule of thumb states that the player whose ball lies closest to the hole attends or removes the flagstick; it is the responsibility of the player who first holes out to replace it.

— Leaves the green immediately upon concluding play of that hole. Practice putting is discouraged. Scores should be recorded en route to or at the next tee rather than on the putting green.

By observing these procedures, a round of golf can be shortened as much as one hour — while increasing its enjoyment!

Appendix 13-A

PERSONAL COMPETITIVE GOLF OBJECTIVES

by: Gary Wiren

1. Set a reasonable schedule of practice and training that you can meet and then stick to it. There will be emergencies and situations that cause an occasional miss, but be as regular as possible.
2. Be positive about yourself, your game and what you are doing.
3. Practice with an objective in mind. Since your time is short, make your practice time of the highest quality. Make each shot as though on the course except when warming up. Fewer balls; more perfect shots.
4. When playing even in a casual round, take enough time to execute properly. As long as you are taking the time to play, even for fun, do it right. Make it a habit.
5. Winners are not always those who have finished first. A winner is someone who gives the most in preparation to reach his potential and makes every effort to perform at his highest level. There will be times when that is accomplished and you still aren't victorious; but you are a winner.
6. No opponent is deserving of either lack of respect or an attitude of awe. In any reasonable match of talent either competitor can win on a given day.
7. You may not have the best talent in a match. But tough competitors often overcome superior talent. Patience and perseverance will pay off in golf.
8. Be consistent in your performance, focusing on the task at hand for the full time you are playing. Don't ease up when ahead or quit when you're behind. You never know what might happen to you or an opponent, so keep your focus.
9. Self-control is a trait that you should strive to achieve. Loss of self-control is harmful to performance as well as to individual growth as a person. It reveals itself in club throwing, displays of temper, offensive language, verbal abuse of spectators or officials, complaining or discrediting the event or facility, etc. *Composure!*
10. Keep your body in good physical shape by observing the following:
    (a) Eat three balanced meals daily avoiding as much as possible fried foods, rich desserts, too much protein, fat and salt. Eat more fresh fruits, vegetables, cereals and grains.
    (b) Get 7-8 hours of sleep a night.
    (c) Limit or abstain from the use of chemicals including alcohol. Moderation is a good guide. Don't train faithfully and then waste yourself in one night.
    (d) Include a mixture of flexibility, cardiovascular and strength work in your physical training program.
11. Be committed but put competing in perspective. There are more important things in life. Putting it in perspective will help you as a competitor to realize *you don't have to win,* only to do your best.
12. Enjoy what you are doing. If it isn't rewarding or enjoyable then reevaluate your program and make it so.

Appreciation is given to St. Olaf hockey coach "Whitey" Aus who created the model for this set of objectives.

Appendix 13-B

DRILLS

LAW: Speed

Drill: Whoosher Drill

Purpose: To create greater clubhead speed.

Description: Take the driver and turn it upside down so the left-hand grip will be taken on the neck of the club. Swing the club with both arms allowing the right hand to come off just before impact, while the left continues to the finish. Listen for a "whooshing" sound. The louder the sound the greater the speed. Leave both hands on and try to maintain the same speed level as judged by the sound.

Drill: Sling-It Drill

Purpose: To create greater clubhead speed.

Description: Pick a target like a flagstick, fifty to one hundred years away. Tell the player that he/she is to imagine throwing the club over the flagstick on the fly, as though he/she was going to wind-up, unwind and sling it — but don't actually let go. Such an action requires a big body coil, back turned fully to the target and then a vigorous unwind of the trunk, accompanied by light grip pressure, to get the greatest speed. Use the whooshing sound as in the previous drill to test for speed. Apply the same uninhibited "slinging feeling" motion to the ball.

Drill: Baseball Cuts Drill

Purpose: To increase clubhead speed.

Description: Players who can generate speed on a horizontal plane often lose too much of it when they bend forward to make a golf swing which is more inclined. Have them make an aggressive horizontal baseball-type swing at waist height. Then gradually lower the height while retaining the speed until the swing touches the ground.

LAW: Centeredness

Drill: Center Putt Drill

Purpose: To strike the ball in the center of the putter face.

Description: Tape two tees or match sticks on the face of a putter about a golf ball's width apart, bracketing the "sweet spot". Putt without hitting the taped-on tees.

Drill: Face Tape Drill

Purpose: To see if the ball is being struck on the center of the clubface.

Description: Put a piece of adhesive, masking, or commercial golf marking tape on the face of a club. Hit a shot and see where the ball is being struck by the mark that is left.

Drill: Divot Drill

Purpose: To deliver the club with enough descent to get the center of the clubface to the ball.

Description: Place a tee in the ground adjacent from the back edge of the ball. Hit the shot with an iron club and take a divot which starts at the tee and continues forward. This assures that the horizontal center axis of the club gets to the ball.

LAW: Face

Drill: Impact Drill

Purpose: To deliver the clubface at right angles (square) to the intended flight line.

Description: Take a bag made of strong material and stuff it with cloth material. Place it on the floor against a heavy chair, or if on the grass, against a tree or golf car tire. Stand so when impact is made with the bag its position is the same as if a ball were present. Use any club, but make sure that the back of the left hand and wrist are flat when impact is made. Put a club under the bag for a target line to make sure the swing comes from the inside. The bag does not have to be hit hard. Make sure after several swings into the bag, that those are followed by some practice swings to a full finish as a golf swing is always *through* not *to.*

Drill: Square Face Check Drill

Purpose: To check and see if the clubface is square at address.

Description: After taking a grip position and before soling the club, push the clubface against any firm object that has a straight edge, like a driving range mat, a two-by-four, a post on the tree, a tee marker, etc. This provides a square face check.

Drill: Right Angles Drill

Purpose: To check and see if the clubface is square at address.

Description: Use any straight line or right angle, i.e., a club layed on the ground, a pattern on a carpet, boards on the floor, linoleum squares, or a seam in the concrete, to use as a reference to see if the face is at right angles to the line. It may seem simple but correct alignment needs to be regularly confirmed.

LAW: Path

Drill: Back and Under Drill

Purpose: To retrain an outside-to-in swing path pattern to an approach that is from the inside.

Description: Take an appropriate stance with the club of choice (suggest #5 iron) and elevate it so the clubhead is about 1½ feet above the ground. Make a backswing that is not pulled quickly inside. Note the angle of the plane going back. Now make a forward swing in which the plane is under or shallower than the backswing plane. "Back, under — back, under." Lower the club to the ball and repeat a similar pattern.

Drill: Shaft Path Drill

Purpose: To train the player to produce the desired swing path.

Description: Push three shafts into the ground at the desired plane angle. Place the shafts in the following manner: The middle shaft at a location just opposite an imaginary ball position; the shaft on the right to control the backswing and path prior to impact; the shaft on the left to control the post-impact swingpath direction. If the desired path is inside-to-out place the right side shaft so the player must swing inside it on the back and forward motion. The left shaft should be located so the player must swing outside of it. If an out-to-in motion is desired, locate the shafts so the player goes outside the right side shaft on the back and through swings and inside of the left shaft on the follow-through. Path can be controlled by selecting the shaft placement and determining whether the swing path is to go inside or outside the shafts placed in the ground.

Drill: Painted Path Lines Drill

Purpose: To develop the desired swing path.

Description: Paint a straight red line pointed to the target. For a straight shot paint a white arc line coming from slightly inside the red target line and contacting it at the ball's location and returning back to the inside. For a draw shot make the arc come from the inside to the out; for a fade from outside to in.

LAW: Angle of Approach

Drill: Sidehill Lies Drill

Purpose: To flatten the angle of approach to the ball.

Description: Create a sidehill lie either by finding a natural sidehill location or create one artifically by using "tall tees" or a slant platform. This inclined stance position automatically causes the player to make a shallower swing.

Drill: Stay Under Drill

Purpose: To flatten the angle of approach to the ball.

Description: Take an old shaft and angle it into the ground so the grip end is 1-2 feet off the ground. Have the player swing underneath it on the forward swing to flatten the approach angle. Adjust the angle as needed.

Drill: Clear the Shaft Drill

Purpose: To steepen the angle of approach to the ball for a bunker shot, cut shot or intentional slice.

Description: Place an old shaft vertically in the ground to the right of the player so that the backswing and forward swing must clear it. The approach will be steepened and be travelling outside-to-in.

PRINCIPLE: Grip

Drill: Off and On Drill

Purpose: To find the natural positioning of the hands for the grip.

Description: Have the student select a middle iron. The teacher should then kneel and hold the shaft so when the player lets go of the club it remains in its same position. The student should let his/her arms hang naturally then swing them onto the grip, release and repeat, until it is evident that a natural arm/body position is quite easy to achieve.

Drill: In the Air Drill

Purpose: To find a natural positioning for the hands on the grip.

Description: Elevate the club and hold it at face height in the right hand where the shaft meets the grip. Angle the shaft so the clubhead is toward the right side of the face and the grip is in front of the left part of the chest. Now reach out with the left hand and place it on the grip in a position where the last three fingers can exert the strongest pressure and two or three knuckles of the top of the left hand are visible. With the right hand holding the shaft in the channel of the fingers, simply slide the right hand down to abut with the left hand in either a ten-finger, overlapping or interlocking grip.

Drill: Military Grip Drill

Purpose: To establish a consistent, solid, grip position.

Description: Stand at attention with feet close together and both arms hanging at the sides. Position the club outside the left leg so when the left arm hangs naturally the club's grip would find the correct position in the fingers of the left hand. Put the left thumb on the right side of the shaft and grip the club snugly in the last three fingers of the left hand. Elevate the club so the clubhead is pointing to the sky and the left hand is at chin height. Add the right hand grip in the fingers. Check to see if the leading edge is square (vertical), before soling the club.

PRINCIPLE: Aim

Drill: Parallel Clubs Drill

Purpose: To align the body and clubface square to the target.

Description: Without question the most widely used practice drill for aiming the body is to lay a club on the ground pointing at the target and then place a club parallel to the first. The target club is used to identify the intended line and check the clubface to see if it's at right angles. The second club is to be used to check the aim of the feet, hips and shoulders, to see if they are square.

Drill: Painted Aim Lines Drill

Purpose: To align the body and clubface so they are appropriate for the shot being played.

Description: Using golf course marking point to create aim lines in the grass or permanent marks on a mat can be useful for a variety of shots. Parallel lines for full shots, a T-line for putting, open stance lines for chipping, pitching and bunker play.

Drill: Mirror to Aim Drill

Purpose: To check body alignment.

Description: Put reference clubs, tape or lines on the floor which match the desired alignment. Place them pointing toward a mirror so that when the body is set up to the lines the body alignment can be checked in the mirror. Look for square feet, hips and particularly shoulders.

PRINCIPLE: Set-Up

Drill: Arms to Chest Drill

Purpose: To help establish the correct distance from the ball.

Description: After the club has been gripped and is being held with the clubhead in the air, wrist cocked and hands at chin height, bring the arms down so they put pressure on the chest. When pressure is felt then bend forward from the hips until the club is only 2-3 inches off the ground, then sit slightly in the knees until the club is soled. The hands will end up about six inches from the left leg and will be inside a line dropped vertically from the eyes.

Drill: Make a Letter T or H Drill

Purpose: To get aligned correctly while finding the correct ball location.

Description: Using clubs or golf course spray paint make either a capital letter H or T on the ground so the student can relate to the correct aim and the location of the ball relative to the feet. The vertical baseline of the T gives a ball position reference as does the horizontal bar on the H.

Drill: Make a Stance Drill

Purpose: To be able to find a consistent ball position and width of stance.

Description: Select an iron club (probably a #7, #8 or #9 iron) that is the same length from the lowest portion of the grip to the hosel as is the width of the stance from left toe to right toe in the driver shot. Once that is established when practicing the driver, lay the selected club down and place tees in the ground at the hosel and bottom of the grip locations. That is the correct consistent width for the driver shot for every practice session. Next locate and memorize or mark the number of shaft steps that the feet are closer together for a #2 iron, #6 iron and wedge. Use tees again to put in the ground when practicing with these clubs to get a consistent stance width. Also note a position on the shaft where the ball should be placed between the feet for irons and woods. Again use a tee to mark those locations in the grass. The spot on the shaft can be marked with a dab of paint. Remember, consistency in shots comes from consistency in preparation.

PRINCIPLE: Arc Length

Drill: Mirror Arc Check Drill

Purpose: To locate a consistent effective length of backswing.

Description: Stand facing a mirror which has a piece of tape running horizontally across the mirror at head height level. Watch to see that the club shaft reaches a position within five degrees (plus or minus) of that line when making a full driver swing.

Drill: Put It on the Shelf Drill

Purpose: To limit the length of the backswing, particularly for players who have too long a backswing.

Description: Find a cabinet, shelf or any flat surface at the player's head height. Have the player stand close to and with their left side facing the shelf or surface. Use the shelf or cabinet top as a barrier to stop the backswing.

Drill: Turn and Hold Drill

Purpose: To increase the amount of turn a player can get in the backswing.

Description: Have the player stand with his/her back to the wall, heels approximately one foot from the base of the wall. Turn first to the right (backswing) and place the hands (with fingers spread) flat against the wall. Hold for 30 seconds. Then go the other direction and repeat the process. Each day work the hands slightly farther across the wall, thus creating more stretch and greater trunk flexibility.

PRINCIPLE: Arc Width

Drill: Pre-Set Width Drill

Purpose: To create sufficient width in the swing radius.

Description: Have the student assume a pre-set position where the wrists are cocked, left arm extended, toe of the club pointing up but the clubhead not quite to hip height. Make a turn to the top of the swing and focus on maintaining an extended left arm as it was at the beginning of the drill.

Drill: Rifle Barrel Drill

Purpose: To develop extension in the impact and throughswing position.

Description: Have the student swing past impact up to hip height in the follow-through. At this point the right arm should be fully extended and the left arm a bit folded, fairly close to the left side. Hold this spot in the toe up club position for thirty seconds, then relax and repeat. This drill is also excellent to get a player to open, close or square the face at impact. Simply turn the clubface down so the back of the left hand faces the ground if a hook is desired, face up to the sky for a slice and toe up for straight. Hold and repeat. Then ask the player to swing through that practice position while striking a ball.

Drill: Lighten Up Drill

Purpose: To relax the muscles to allow centrifugal force to create expansion and release.

Description: Have the student grip the club as tightly as possible (call that a 10 level) and try to swing the club. The result is a slower, higher off the ground, reduced swing arc effort. Then request an eight in grip pressure level, a six and a four, each followed by swings simulating those numbers. Notice how the swing arc expands and reaches the ground more easily taking grass when the grip pressure decreases. Centrifugal force and gravity are working to help the student if he'll allow them to not be squeezed out.

PRINCIPLE: Lever System

Drill: Pre-Set Drill

Purpose: To create a potentially powerful second lever in the backswing.

Description: Let the student take his/her grip and stance position with a #5 iron. Then while the arms are still in front, cock the wrists to a position of about 70 degrees from ground level. A second lever has now been created. Swing those two levers to the top of the backswing. Gradually blend in the takeaway as part of the creation of the second lever.

Drill: Half Grip Drill

Purpose: To create a second lever in the backswing.

Description: Take a normal left-hand grip but put the right hand half-way down the shaft. Use the right hand to set the second lever while the left arm remains in an extended position still in front of the body. Tug the left arm to the top with the fingers of the right hand pulling on the shaft. Repeat the drill noting the feeling of the left wrist when fully cocked.

Drill: Early Set Drill

Purpose: To guarantee that the player will cock the wrists in the backswing.

Description: After the student has taken his address position, ask him to immediately cock the wrists (set the angle) in the takeaway. This will ensure that he doesn't reach the top of the backswing still in a one lever position.

PRINCIPLE: Swing Center

Drill: Doorjam Drill

Purpose: To keep the center of rotation in control.

Description: Stand in a doorway facing the doorjam and bend forward at the hips until the body inclination matches that used for a full swing. Let the arms hang fully in front. Touch the hair or top of the forehead lightly against the doorjam and make a limited backswing and throughswing similar to that used for a short iron shot. The head will rotate slightly in the backswing returning back to the original position on the forward swing, then turning left and moving up as the right shoulder contacts the chin. Some lateral head movement can be allowed as the shot gets longer. In driver swings the lateral movement of the head may be slightly greater although successful swings may also be made with just head rotation and little lateral head movement.

Drill: Don't Spill the Soup Drill

Purpose: To keep the swing center from moving too far back and down.

Description: While the swing center has some degree of movement possible it can move out of position (too far back and down if there is an attempt by the player to overuse the legs by driving them to the target). This tilts the upper body backward in order to compensate, making the angle of approach less than ideal. Ask the player to imagine a bowl of soup has been placed on the top of his head and that he is to stay level through the swing so as not to spill it. In fact there is some body tilt forward in the swing but this concept and drill can help level out those who exaggerate.

Drill: Head Control Drill

Purpose: To keep the swing center from raising.

Description: Raising the head up (which elevates the swing center) is usually the result of some other technical error. It is one of the most common mistakes that the novice makes. To eliminate it, have the student bend forward from the hips in a good set up position. The teacher should then hold a club so that the grip rests like a low ceiling just above the student's head. Ask the student to maintain his forward body tilt and swing center by not allowing the head to raise up and hit this barrier which he imagines to be a ceiling of sharp spikes.

PRINCIPLE: Timing Drill

Drill: Baaack and Through

Purpose: To develop a well-timed swing with rhythm.

Description: Use the words back and through; in this fashion: say BAAACK by stretching it out to create an unhurried backswing fashion. The AND represents the completion of the backswing and transiton to the forward swing. THROUGH is said more quickly, representing acceleration.

Drill: By the Numbers Drill

Purpose: To develop timing and rhythm in the swing.

Description: Have the student count 1-2-3---4-5-6 with each swing while hitting balls. Count out loud and try and keep the numbers at an even level of intensity. If too much hitting effort is expended there will be an increase in vocal intensity on the number 4.

Drill: Good Swings by Osmosis Drill

Purpose: To develop timing and rhythm in the swing.

Description: Have the student select a Tour player's swing that he would like to emulate — one that has good timing and rhythm. If possible have him watch the Tour player repeatedly swinging on video. When the student is on the course get him to visualize his Tour model and swing as closely to that model as he can.

PRINCIPLE: Release

Drill: Baseball Swing Drill

Purpose: To get forearm rotation for a full release.

Description: Hold the club about 1½ feet above the ground as in swinging at a low pitch in baseball. At this height it is easy to get forearm rotation. Gradually lower the position while maintaining the release.

Drill: Toe Up to Toe Up Drill

Purpose: To return the clubface to square by getting a correct club position on both sides of the ball.

Description: From a position in the backswing where the club is horizontal to the ground at hip height with the toe of the club pointing skyward, clubface vertical, swing to a position in the follow-through with the club shaft again horizontal at hip height, the toe of the club to the sky and the leading edge vertical.

Drill: Skake Hands to Shake Hands Drill

Purpose: To square the clubface at impact by locating the correct position of the right hand prior to and after impact.

Description: Put the right hand out at hip height to the right side as though shaking hands with someone — the right arm should be folded at the elbow and the body should be turned slightly in that direction. Then repeat the shake hands position at hip height on the left side but this time with the right arm more in extension.

PRINCIPLE: Dynamic Balance

Drill: Gary Player Down the Fairway Drill

Purpose: Get the weight transferred to the left side in the forward swing.

Description: Follow through by taking a step with the right foot down the fairway after the shot, much as Gary Player often does.

Drill: Lift the Leg Drill

Purpose: To make absolutely certain the weight is being transferred correctly on both the back and forward swings.

Description: To make sure that the weight is transferred to the right leg in the backswing, raise the left leg off the ground during the backswing. To make sure the weight is transferred to the left foot in the forward swing, raise the right foot off the ground in the follow-through. Gradually reduce the height of the lifted leg until the foot actually stays in contact with the ground and gradually finds its correct position.

Drill: Right Knee Hits Left Knee Drill

Purpose: To complete the trunk rotation on the throughswing and allow the weight to finish on the left side.

Description: In a stance with the feet not too far apart see that the right knee actually touches the left knee (right knee pointing to the target) on the follow-through.

PRINCIPLE: Position

Drill: Pre-Set for Position Drill

Purpose: To establish the correct position at the top of the swing by setting it early enough to observe its position.

Description: After making a good grip, cock the wrists immediately in front to about 70 degrees without swinging the arms back. Check to see that the toe of the club is pointing to the sky (leading edge vertical). This is a square position. Swing the club to the top without any change in the wrist position so that the face will still be square.

Drill: Mirror Image Drill

Purpose: To check the position of the hands, wrists, arms and clubface at the top of the swing.

Description: Stand with the right side of the body facing a mirror. Swing a club to the top of the backswing and look to see if the club is aligned parallel to the target, the clubface is at approximately 45 degrees and is in plane with the left wrist and back of the left forearm. When the correct position is found, put a strip of tape on the mirror to match that angle and to use as a reference.

Drill: Lift, Set and Turn Drill

Purpose: To find the correct position at the top of the backswing.

Description: Take a good grip. Raise the club off the ground by elevating the hands to hip height. Cock the wrists so the left wrist is basically flat and the club is angled over the right shoulder. Bend forward at the waist and then turn the shoulders allowing the hands to go over the right shoulder but without changing their pre-set alignment. This should represent the correct position at the top.

PRINCIPLE: Plane

Drill: Flagstick Drill

Purpose: To locate the on-plane position of the arms and hands in the backswing and forward swing.

Description: Take an old flagstick and grasp it in the middle. Swing to the top and monitor the extended portion from the butt of the left hand. This extension should point through the ball on the downswing and also point to a line extended from the ball (target line) at all times during the swing. This drill can also be done by gripping a driver in the middle of the shaft on the steel.

Drill: Flashlight Drill

Purpose: To identify an on-plane swing.

Description: Attach a pen light (flashlight) to the top of the grip. Choke down below the light and while standing in a partially darkened room which has a baseline strip of tape placed on the floor as the target line, swing, matching the beam of light to the line.

Drill: Plane Imaging Drill

Purpose: To put the club on-plane during the swing.

Description: Visualize standing in the center hole of a large sheet of plywood which has been tilted so the baseline is resting on the ground and the opposite side lifted creating an angle of some 55 to 65 degrees. Feel as though the arms are swinging back and through allowing the club shaft to simply ride on the plywood plane while the club goes from toe up to toe up.

PRINCIPLE: Impact (see Face)

PRINCIPLE: Connection

Drill: Head Mitts Drill

Purpose: To maintain the upper body parts in their correct relationship during the swing.

Description: Take two head covers, preferably the large soft material type, and put them under each armpit. Hit wedge shots maintaining the head covers in this underarm position. Gradually work up to longer clubs. Sense this same relationship of arms to body when playing, although the swing will have more freedom.

Drill: Strap Drill

Purpose: To maintain the upper body parts in their correct relationship during the swing.

Description: Put an elastic strap (homemade or commercial) around the arms, or arms and chest to restrain the right elbow from lifting in the backswing and the left arm from separating too widely from the left side in the throughswing. Swing and hit balls.

Drill: Club Attached Drill

Purpose: To maintain the upper body parts in their correct relationship during the swing.

Description: Hold the club with both hands on the steel just at the bottom of the grip and place the butt of the club against the stomach so the club is horizontal. Turn back and through as though making a golf swing and note the feeling of how the hands, forearms and body stay in the same relationship.

SKILL: Chip and Pitch

Drill: Extender Drill

Purpose: To keep the clubhead from passing the hands prior to impact.

Description: Cut the top portion of the grip from the butt end of a chipping or pitching club. Run an old shaft taken from a driver down inside the top so that it extends to make the iron club much longer. If the player attempts to scoop the ball and break down the left wrist, the extended portion will bump him/her in the side of the ribs.

Drill: Grass Ahead Drill

Purpose: To keep the clubhead from passing the hands prior to impact.

Description: Have the student step a few inches away from the ball and make a practice swing in which he/she brushes the grass ahead, to the left of the ball. The player will not be able to do so if the left wrist breaks prematurely.

Drill: Wrist Flat Drill

Purpose: To keep the clubhead from passing the hands prior to impact.

Description: Keeping the left wrist flat is a great protection against letting the clubhead release prematurely. Some of the ways to accomplish this position are: a) use a tongue depressor or any smooth flat stick under the back of the glove that resists the hinging of the back of the left wrist toward the top of the forearm; b) put a tee in the top of the grip and never let the tee point toward the body; c) establish a reverse letter Y position in the set-up with the club being the leg of the Y and maintain the Y to the finish of the stroke; d) try and decrease the loft of the clubface from address position to contract rather than increase it; e) apply pressure on the left thumb with the butt of the right hand and feel the butt of the right hand leading the stroke.

SKILL: Bunker

Drill: Line Drill

Purpose: To develop a consistent entry point in the sand in correct relation to the ball position.

Description: Draw a straight line 10 feet long in the sand with the butt end of the club or rake handle. Let the player straddle the line so it is slightly left of center in his/her stance. Make swings so the player splashes sand forward with the entry point starting on the line. Travel down the line repeating the drill until the entry point is consistent. Then add a ball some three inches ahead of the line and repeat.

Drill: Rocks Drill

Purpose: To reduce the anxiety in playing bunker shots.

Description: Put the student in a practice bunker that is close to the edge of the green. Ask him/her to make a full bunker swing and splash sand out onto the green. Indicate that the grains of sand are like miniature golf balls and playing a ball out is no more difficult. Find some small pebbles or rocks and place them on top of the sand so they can be splashed out like the sand, only as bigger grains. Then place a ball, like the rocks, on top of the sand and ask the player to splash sand again onto the green, only now there is a big white rock (the ball) which will go with the sand.

Drill: Board Drill

Purpose: To teach the proper bounce that should come from the sole of the sand iron.

Description: Get a piece of firm board like a 1x4 or 2x4 and bury it in the sand slightly below the surface. Put a ½ inch layer of sand on the board and have the student play the shot utilizing the bounce of the board against the flat portion of the sole of the sand iron.

Drill: Overlap Release Drill

Purpose: To encourage the player to finish the swing rather than decelerating and stopping.

Description: Have the player place his right-hand grip totally over the left hand so the right hand cannot squeeze, and in doing so apply too much pressure on the shaft causing it to slow down. Hit balls with this grip. The momentum will carry the swing to a good finish.

SKILL: Putting

Drill: Push Putt Drill

Purpose: To make the putter blade go to the target following through rather than stopping at the ball.

Description: From a very short distance (1-2 feet) place the ball on a level portion of the green. Set the putter face against the ball with the blade at right angles to the target. Vigorously push the putter blade toward the center of the cup with enough acceleration so the ball leaves the face.

Drill: Pace Drill

Purpose: To develop a stroke which can produce a consistent pace for various distances.

Description: Place three balls on the putting green. Putt one ball to no particular target, but closely monitor the effort it took to get there. Putt each of the other two balls so they finish the same distance as the first.

Drill: One Arm Putting

Purpose: To eliminate wrist breakdown in putting.

Description: Grip the putter with the right hand alone so the wrist is slightly extended (back of the hand toward the top of the forearm). Putt using no wrist action. Switch to the left hand alone (may need to go lower on the grip for control) and with the back of the left hand solid, do likewise. Then putt some with both hands mimicking the action practiced when using the hands separately.

Contests & Games

Putting

1. **Ten-in-a-Row:** Put tees at one foot increments starting two feet from the hole. Putt progressively from each location trying to make ten in a row. When there is a miss, return to the beginning.
2. **Around the World:** Place four balls around the cup in each direction, N-S-E-W, at a distance of two feet. Make them all, then move to 3, 4, 5 and 6 feet, see how many successful putts can be recorded out of 20.
3. **Twenty-one:** Play 21 against one or more competitors. Each plays one, two or three balls depending upon the number of players; three balls with two players, two with three or four, one with more than four. The closest balls to the hole with two players scores one point each, closest of three balls each score a point when more than two players are involved. A sink is worth three points; a sink on top of another cancels the first and gets three. Three-putting subtracts two points. Player must hit 21 exactly or lose. Player who previously scored points putts first.

4. **Horse:** Play horse, like in the basketball game. As many players as desired can play. The first player selects a putt and if he/she makes it, the person following must do likewise from the same location or get a horse. If the second player makes the putt, the third player must do so as well or receive a horse. If the second player fails to make the putt, the next player may choose a new location. Play to three or five points before out depending on the number of players.

5. **Contract Bridge:** Player selects a location longer than three feet and bids the number of strokes it will take him/her to hole out three balls. His opponent may bid lower, accept the contract or double the bid. If the original bidder makes his contract or fewer, he gets three points. Should he fail by one stroke he loses three, if he fails by two, he loses six, and three or more, he loses nine. For every stroke fewer than the contract he receives two points per stroke bonus. If he is doubled, he may re-double. The game is to 30 points.

6. **Pull Back:** Players putt against each other in clock golf fashion from different lengths. If the putt is not holed on the first stroke, it must be pulled back from its location one additional putter length. If the second putt is missed, it must be pulled back as well, continuing until the putt is holed. (This also may be played as double pull back or two putter lengths.)

Pitch & Chip

1. **Up and Down:** Take six balls and challenge yourself or someone else to an up and down contest from six different locations.

2. **In the Circle:** Make a circle with a radius of a putter length marked with tees. See how many the player can get into the circle from different locations.

3. **Trajectory:** String two cords or tape one foot apart between two shafts stuck in the ground. Chip or pitch under, through and over to learn trajectory. Score points.

4. **Pitch to Win:** Spray two ten-foot lines twenty-five yards apart that run parallel... one a starting line, one a finish line. Make a third parallel line five feet long and five yards from the starting line; it will be the opening line. From back of the starting line pitch a ball with a sand wedge that lands in the air beyond the opening line. Then pitch a second ball to land past the opening line and finish beyond the first ball. Continue, always pitching the next shot past the opening line and always finishing past the previous shot. See how many balls can be hit in succession before exceeding the finish line. Once a ball has finished short of the previous ball, the game is over and the number of successful shots is the score. The contestant is allowed three trys to get the first shot past the opening line. As soon as one is passed the game begins. After three successive short misses, one point is deducted from the final score for each additional short opening shot.

Bunker Contests

1. **Bunker Challenge:** With three players in the bunker rotate the order of playing first and selecting the type shot to be played and its location. Closest to the hole for the three is worth two points, one for next closest, none for farthest. A hole out is worth double the closest points, or in this case four. If five players play points go 4-3-2-1 and 8 for a hole out. Game is to 21 points.

2. **Bunker Up and Down:** Set up a six hole course playing from various locations in the bunker to designated pin locations. Make two of the shots buried lies. Play up and down for total score.

3. **Get Them Out — Get Them Close:** Depending upon the level of the player, see how many consecutive balls he/she can, a) get out of the bunker, b) get on the green, c) get inside a seven-foot radius (one flagstick). Let them set their record then try and improve it.

Full Swing Contests

1. **Direction Challenge:** With two competitors select a wedge and play to a target approximately 100 yards in the distance. The ball that comes closest on-line with the target (providing it is not a mishit) is awarded a point. Play to five points and go to a #8 iron, five more points than a #6, etc. Each club is a new game. If three competitors plays, score two points for closest and one for next closest, the game is to seven points.

2. **Greens in Regulation:** Play tee to green rounds imagining the course you plan to play next. If the first hole is a par five, start with the driver, picture the hole and make the shot. Depending on the result select the club for the second shot and play accordingly. Then the appropriate iron to a target on the range. Estimate how many fairways and greens were hit in regulation.

3. **Junior Medalist:** Use the Junior Medalist booklet from the PGA of America to set up a full iron and wood swing target game. The scoring, plus equipment information to use to mark the range, is included in the booklet.

Appendix 13-C

McLEAN VIDEO TEACHING FORMAT

McLean Teaching System/A Video Lesson!

A. Taping

1. Assistant tapes: two 5-iron shots from the *side.*
   two 5-iron shots from the *rear.*
2. Assistant tapes: two wood shots from the *side.*
   two wood shots from the *rear.*
3. Assistant tapes: two *pitch shots.*
   any shots *troubling* student.

B. Review Tapes

1. Bring student back to Video Room.
2. Sit together in front of TV monitor.
3. Play back the swings taped; teacher analyzes swings as student observes; ask for student input.
4. Student and teacher agree on points they would like to improve.
5. Teacher draws image of student's swing for future reference.
6. Make teaching books illustrating all phases of the swing available to the student.
7. Check numbers off Swing Analyzer — indoors.

C. Make Corrections Indoors

1. Tape the student taking practice swings with the swing change.
2. Ask student how it feels.
3. Replay the tape with the swing change:
   (a) Did the student make the change?
   (b) What did the student feel in making the swing change?

D. Hit Balls Indoors

1. Students should hit several balls with new swing and feel.
2. Did the student make the change?

E. Go Back Outside

1. Encourage new feels.
2. Focus attention on *swing results* — not flight of ball results.
3. Give student *drills* to help establish the new feel and to promote fundamentals.
4. Ask student if he/she can picture what they are doing now versus what they were doing before?

F. Write Down Important Points

1. Give student a *"Points To Remember"* card to help him/her identify with:
2. Three ways to learn:
   (a) Visual
   (b) Feel
   (c) Sound

G. Teaching Aids

1. Use poles to demonstrate and to direct student.
2. Paint
3. Other teaching aids.*

*Material provided by PGA Member, Jim McLean.

Appendix 13-D

GRAPHICS FOR VIDEO INSTRUCTION

The following graphics along with the teaching program that goes with the four camera systems were developed by Mr. Don Krog and Dr. Jim Suttie. In looking at the golf swing this way both the student and the instructor get a new and unusual view of the movement. Most teachers will have access to only one camera which of course may be moved to any of the four locations.

In getting correct information it is important to set the cameras in these precise positions:

Camera seven yards from student for best results:

> Camera Angle #1: Lead camera down the target line. Camera should bisect the ball for swing path information and bisect the body for body information.

Camera seven yards from student for best results:

> Camera Angle #2: Side view — frontal camera should bisect the body at the hip area.

Camera seven yards from student for best results:

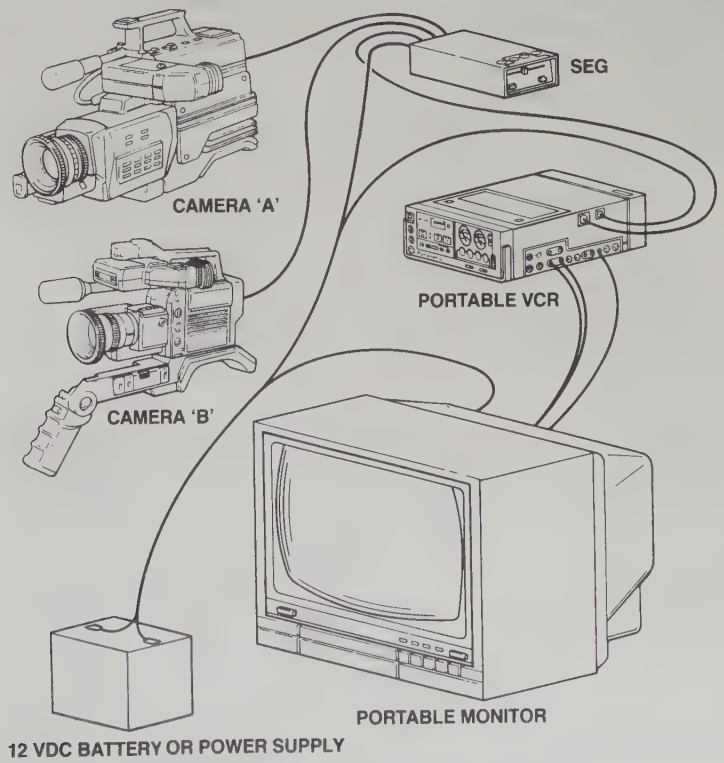
> Camera Angle #3: Side view — rear camera should bisect the body at the hip area.

Camera seven yards from student for best results:

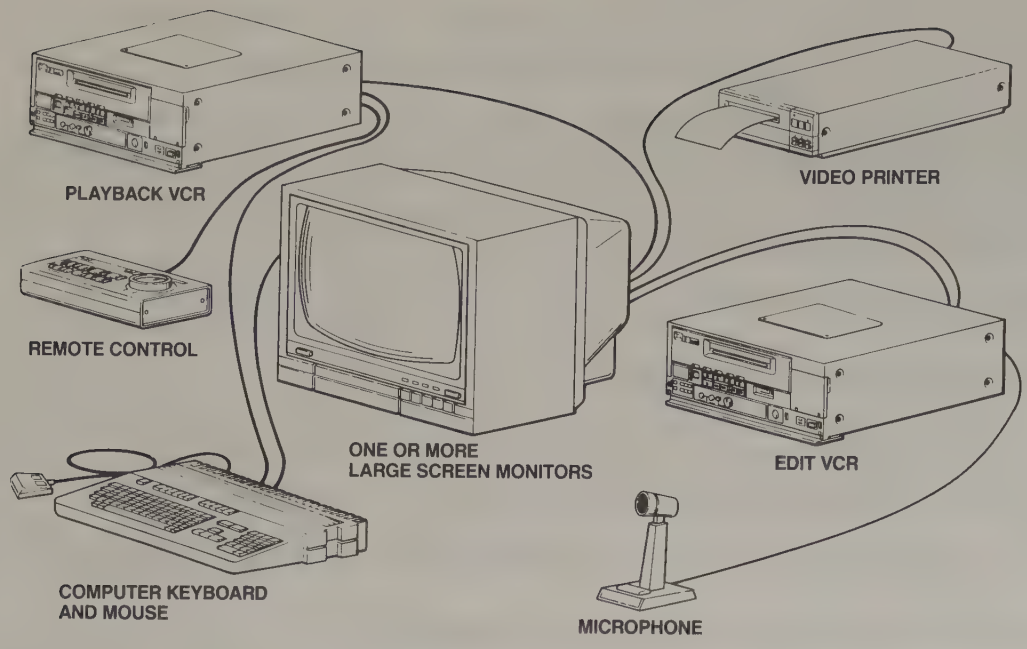
> Camera Angle #4: Top view camera should be placed three to four yards above the student's head. Bisect the head and spine.

Teaching Program

Any two camera angles (of the 4) may be projected on the screen at one time. A specially designed program designed by Jim Suttie, Don Krog and a computer programmer is available to look at the golf swing from a graphic perspective. The errors are pointed out with the aid of these graphics along with an audio-over-voice. The tape is then given to the student with corrective drills on it.



Two-to-four Camera Split Frame
On-Site Schematic



Classroom Playback
& Re-recording Schematic

Explanation of Teaching Graphics

Frontal View

I. Side View (frontal) — Graphics

1. Outline shoulders, head and upper body. These graphics give the student a general overview of his movements. They help explain:
   a. Shoulder rotation
   b. Weight shift
   c. Head movement
   d. Arm extension and one piece takeaway
   e. Impact, top of swing and finish position and how they compare to the address and the top of the swing.

2. Two vertical lines drawn up from the center of the feet to a point just outside the hips. These two lines help explain:
   a. General movement of lower body including: hip sway, knee sway, incorrect body rotation, reverse pivot, and sliding of hips through impact.
   b. Correct body rotation and weight shift into the right heel.

3. Dots on the knees at address and dots on the knees at impact.
   a. Correct and incorrect knee movement on the backswing and at impact.
   b. Correct right knee movement through impact.

4. Dots on the shoulders at address. A curved line connecting the dots on the backswing to determine if the student is getting a 90-degree shoulder turn. Different color dots on the shoulders on the downswing. Connect the dots with a circular line all the way to impact. This gives the student information about his shoulder turn on the downswing. It shows if he's dipping (tilting under) or moving the shoulders *past* the point where they started at address.

5. Box the head. The head will move out of the box on the backswing. This is acceptable because of the shoulder rotation. But, the head should *not* move forward past this box on the downswing. If the head moves past the box, the student is getting out in front of the ball because of a reverse pivot on the backswing or early shoulder rotation on the downswing. Also, the student's head should not go down excessively on either the backswing or downswing. This would indicate incorrect shoulder and hip rotation.

6. A vertical line drawn up from the ball at address or a line drawn from the ball extending out towards the frontal camera (ball position). This line indicates ball position at address in relation to the upper body. The line should intersect the left ear for the longer clubs and intersect the head for the shorter clubs. The line also indicates if the student is turning behind the ball at the top of the swing.

7. An oblique line drawn on the spine at address and at the top.

   Example: \

   This shows correct body tilt at address and shows if the upper spine is farther away from the target than the lower spine at the top of the swing.

   A line like this / would indicate a reverse pivot.

8. Dots on the clubhead and the hands. Connect the dots. Use different colors for backswing and downswing. This shows if the swing is elliptical in nature. If it is circular then it indicates an incorrect weight shift and body rotation.

9. Circle the feet if they are angled improperly or they are not working correctly on the backswing. Left heel comes off ground towards the top and is quickly replanted.

10. Other things that may be looked at with arrows, circles, lines, etc.
    a. Right elbow on backswing. It should be above the left arm. Show an arrow to indicate this.
    b. Right leg brace. A vertical line on the rear knee. This line should be drawn just outside the right foot. It should run up vertically just outside the knee. On the backswing the golfer should not move past this line or he has swayed his knee to the right. He may move slightly into the line but not past it. He should also not move away from the line on the backswing. This would indicate a reverse pivot.
    c. Wrist set and retention of angle. Line drawn from the clubhead running up the shaft and the target arm and shoulder tracks the movement of the target arm and shaft all the way through the backswing and downswing. This shows the student when he is cocking the wrists on the backswing. It shows a casting or non-casting motion from the top.
    d. At the top of the swing a vertical line bisecting the center of the hands should bisect the rear foot. This would indicate if the weight is over the right heel and the hands are in balance. Ideally the hands and arms should travel 135 degrees from where they started.

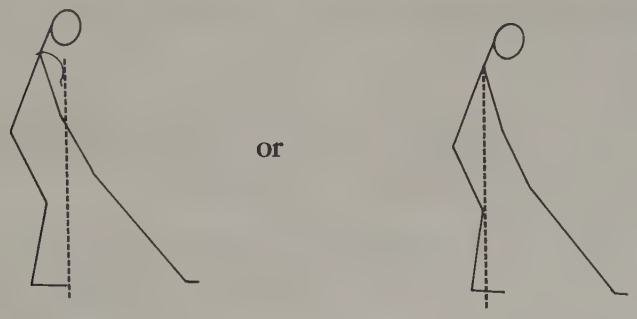
Generally	Hips	45 degrees at top
Speaking:	Shoulders	90 degrees at top
	Arms & hands	135 degrees at top
	Clubhead	270 degrees at top

    e. Horizontal lines bisecting the knees and hips. These lines will generally determine if there is too much downward and upward movement during the backswing and downswing. Also, the hips should stay relatively level throughout the entire swing.
    f. Lines like this to determine correct body TILT at address:

    g. Use arrows, lines, circles, etc., where an error is indicated.

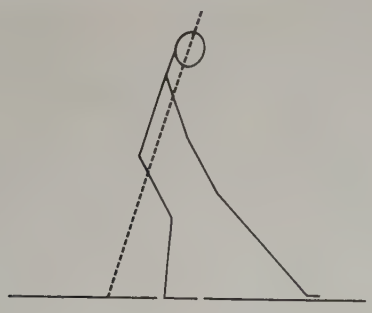
II. Down-the-line View Graphics.

1. Alignment Graphics — put lines on feet, shoulders and target line.
2. Posture Graphics — a vertical line drawn from the tips of the shoulder sockets to the tips of the toes. Or, a line from the armpit bisecting the center of the feet.



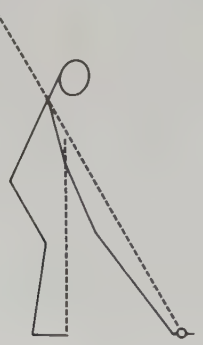
This shows that the mass of the body weight (center of gravity) is stable and balanced over the center of the feet and base of support.

3. Spine-Angle Graphics — draw a line through the center of the head through the center of the trunk down through the hips. Continue drawing this line down to ground level. The spine angle line should look like this:



The amount of bend from the hip sockets is variable depending on the length of the legs in relation to the length of the torso and arms. The important thing to remember is that the center of gravity must be over the center of the feet. This posture should be maintained at the top, at impact, until just after impact. As the spine angle is maintained the shoulders will turn at right angles to the spine.

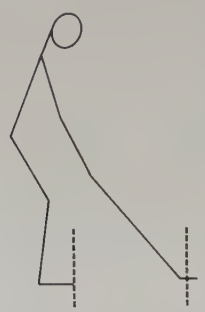
4. Box the head. This shows movement towards the ball and away from the ball. This movement should be minimized.
5. Line drawn up from the toes. This line would help determine if the knees stay inside the toe-line on the backswing. If golfer is over-flexing knees on the backswing the weight will go back to the heels and the knees will go outside the toe-line.
6. Swingplane Graphics — shaft plane.



Draw a line through the ball bisecting the base of the neck. Backswing plane — once the golfer gets the club parallel to the ground on the takeaway, the clubshaft should start working up parallel to the plane. At the top the club should be on this line or a little left of the line. Downswing plane — on the downswing the shaft should be coming down parallel to this line.

7. Swingpath Graphics — dot the clubhead on both the backswing and downswing. Connect the dots to show the backswing path in relation to the downswing path. The two paths should be close together as the club nears impact. The patterns will be all different depending on posture, grip, club being used, wrist set and how the golfer changes direction. But, in general, most of the better players have these two paths very close together throughout the entire swing. The farther away these two paths are the more compensations must be made.

8. Takeaway Graphics — in general, most people roll the forearms excessively on the takeaway. This puts the club too far *behind* the golfer in a "laid-off" position. This is usually due to a poor grip causing right hand control on the takeaway, a poor posture (too erect) or too far away from the ball. In any case, the graphics should be displayed as such:

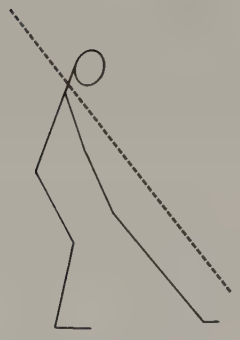


If the hands roll or are pushed out the club will be "laid off." Both the hands and club should be circled. Two lines drawn — one line on the target line and one line on the footline. As the club is taken back, the clubhead should be pointing in between these two parallel lines. In other words, the hands stay in as the clubhead points in between the two lines. This will automatically cause the shaft to work parallel to the plane.

9. Distance from the ball graphics:

Put an arrow between the ball and the toes if the student is too far or too close to the ball.

10. Shoulder Plane Graphics — the plane of the shoulders should stay constant through the entire rotational movement of the golf swing. The plane of the shoulders is determined by: 1) club being used, 2) distance from the ball and 3) posture. But, once the correct posture is established the shoulders will turn at right angles to the spine angle. Shoulders turn at right angles to the spine.



The shoulders will turn somewhere outside the ball depending on the individual player's posture. The shoulder plane can be displayed by drawing a line through the shoulders to a point somewhere outside the ball position. Every golfer is different. If the golfer is rotating correctly, this shoulder plane will be consistent all the way through the backswing. The downswing shoulder plane will be slightly below the backswing shoulder plane because there is a slight tilt in the shoulders due to the forward movement of the hips. If we work off the premise that the shoulders control the arms, the arms control the hands, and the hands control the clubhead, then we can assume that the ideal downswing clubhead movement will be inside the way it went back just as the shoulder plane is inside the way they went back.

11. Graphics showing left wrist position at the top. A line on the left wrist at the top of the swing.
12. Other graphics may be used as error indicates.

III. Side-View Graphics — Rear View

1. Outline entire body. These graphics show the upper body tilt at address. It also shows how the hips are forward and up. In addition to this, it shows how the center (posterior lower spine) is closer to the target than the upper spine. Comparisons can be made with body position at address, the top, impact and the finish.
2. Dot on lower spine. This dot should stay in the same spot (on the lower spine) at the top and at impact. If the dot moves off the spine, an error has been made in body movement.
3. Vertical line on outside of right foot running up to the top of the knee. This right leg brace should be maintained throughout the entire swing. If the golfer moves the knee into the line, it indicates a lower body sway. If the golfer moves away from the line on the backswing, it indicates a reverse pivot with the lower body.
4. Circle both feet to show movement of feet throughout the backswing and downswing.
5. Put an < on the right knee at impact showing how the right kneecap should be pointed at the ball at the point of contact.
6. Put a circular arrow on the left hip area to show how the left hip is cleared out of the way through impact.

   Example:

7. Put vertical lines on both heels running up to the hips. This shows that the hips move towards and are positioned directly over the heels at the top of the swing and at impact.

8. Put an arrow pointed downward from the arms just after impact at the extension point. This arrow indicates that the left elbow should point down after impact at the extension point.

9. Put a line on the spine at address /, at the top /, and at the finish /.

10. Other graphics used as needed.

IV. Overhead Graphics

1. Dot both shoulders and connect the dots with a straight line. This shows if the shoulders are rotating behind the ball.

2. Ball position line — draw a line up from the ball.

3. Lines for alignment — target line, feet and shoulders.

4. Outline head to show excessive head movement and body sway. Or, put dot on head.

5. Lines drawn up from the heels. This shows that when the hips get outside these lines excessive lateral movement is taking place. The hips never get outside the heels on the backswing and impact. The turn takes place inside the heels.

6. Dots on the clubhead on the takeaway and the downswing.

7. Show face, angle at impact (open, closed, square).

8. Draw a straight line on the spine. If a golfer is turning around the lower spine the mass of the upper body weight will get behind this line at the top. Too much movement to the right (a sway) will also be very clear. In addition to this, too much movement to the left (an upper body reverse pivot) will also be clearly shown.

9. Draw a line next to the left ear. Monitor the head movement throughout the whole swing.

V. Swing Tempo and Angular Acceleration

Swing speeds will vary from golfer to golfer depending on that individual golfer's body strengths. There are fast swingers that have been successful as well as slow swingers that have been successful. The angular acceleration of each golfer's body parts will vary depending on the following factors: 1) muscle strength, 2) type of muscle fiber (fast vs. slow twitch), 3) technique, 4) arc width and length, 5) amount of hip and shoulder rotation, 6) the golfer's individual timing system (sequential motion), and 7) each golfer's individual body strengths. But, in general, the backswing should take 30 frames as the downswing to impact should take 10 frames. As far as swing tempo is concerned, this is a three-to-one ratio from backswing to downswing.

Appendix 14-A

LIGHTNING

What you should know about golf's killer hazard
by: Dorothy Geisler*

True or False?

1. Rubber tires don't protect you from the force of a lightning bolt.
2. Lightning does not have to hit you directly in order for you to be seriously injured.
3. Water attracts lightning.
4. If stranded in a forest, it is best to stand under a group of shorter trees.
5. An "apparently dead" lightning victim can sometimes be revived.
6. Lightning carries many times the charge of an electrical power line.
7. It is safe to touch a lightning victim almost immediately following the injury.
8. Lightning always takes the path of least resistance.
9. Your hair may stand on end just before lightning is ready to strike.
10. Lightning kills more people each year than tornadoes do.

The answer for each of these 10 statements is *true*. Here's why golfers should take lightning more seriously than they do:

Lightning seems as much attracted to golf courses as golfers are. The mixture of trees, open spaces, high and low spots, water, metal shoe spikes, metal clubs, wet grass, golf cars, sprinkler systems and a golfer's determination not to be defeated by the elements all add up to a most likely target for lightning statistics.

Lightning First Aid**

"You should first check to see if the victim is breathing and if his heart is still beating. If there is no heartbeat, Cardiopulmonary Resuscitation (CPR) should be started immediately. If the victim's heart is still beating, but he is not breathing, mouth-to-mouth resuscitation is needed." CPR is a combination of mouth-to-mouth resuscitation and external cardiac compression, and treatment should be administered only by persons with proper training. About eight hours of classroom instruction are needed to learn CPR. It is offered by the American Heart Association and the American Red Cross.

The Red Cross advises that immediate first aid to restore breathing is necessary to prevent irrevocable brain damage and must begin within the first four to six minutes. Mouth-to-mouth resuscitation once every five seconds is necessary for adults.

"Once breathing and a heartbeat are established you should check for burn areas," says Tod Turriff of the National Safety Council. "There will usually be a point where the lightning entered and a point where it exited. These will be second-or third-degree burns. They should be covered with a clean cloth. Other burn marks may appear around jewelry — watches, rings and belt buckles. The victim is likely to be in shock and should be treated for this."

To treat for shock, keep the victim lying down. Cover the body enough to maintain body temperature and get medical attention promptly. Even someone without apparent injuries can still die from shock alone.

The victim who has a heartbeat and is breathing will probably recover spontaneously, but should receive burn and shock attention as soon as possible.

Preventive measures and myths. Check the latest weather forecast before beginning any outdoor activity. It is not advisable to begin a round of golf if there are severe weather watches or warnings posted. There are signs to watch for that indicate an electrical storm is approaching and may indicate an immediate need to seek shelter. Don't ignore very dark clouds, thunderheads and occasional flashes of lightning in the distance — they all signal an approaching storm.

Generally, if you take heed you will have ample time to find shelter. Your best protection is inside a large building or an all-metal vehicle. Contrary to popular opinion, a golf car is *not* a safe place to be. The rubber tires will not protect you. However, when lightning strikes an enclosed car you are protected by the vehicle's shell, which diverts the charge of the bolt along the metal skin of the vehicle before it jumps to the ground. Likewise, rubber-soled shoes offer little protection from lightning.

Small, isolated sheds in open areas will attract lightning and will not offer the protection you need. Any object that projects above the rest of the landscape could draw a lightning bolt. Because lightning follows the path of least resistance, it is drawn to the tallest object. That may be a large tree, or even a person standing on an elevated area, such as a green or tee.

To minimize your chance of being struck, find a low spot away from water and metal objects. "Waiting out a thunderstorm under a tall tree on the golf course is like standing in the middle of a freeway at rush hour," says Mike Mogil, a severe-storm expert with the National Weather Service. "You may not be hit, but you're taking a dangerous and unnecessary risk."

If you are in a wooded area seek shelter in a low place under a thick growth of small trees. The larger trees are most likely to be struck first. You may receive residual lightning, but that's better than a direct hit.

The most ominous warning signal occurs when your hair literally stands on end, caused by highly charged air. If this happens, get away from any metal object and drop to your hands and knees immediately. The danger of your body acting as a conductor will be minimized.

Too many golfers' attitudes about lightning are reflected in the comments of a lightning strike victim, who fortunately survived. "We had no fear of lightning or a storm," he says. "Our main concern was that we wanted to finish our round. Too many people just don't think getting struck by lightning can happen. Believe me, it can."

*Adapted from Golf Digest article, June 1982.
**From Tod Turiff, National Safety Council Golf Digest, June 1983.

Appendix 15-A

A Partial List of

GOLF SCHOOLS IN THE UNITED STATES

The Academy of Golf at the Hills of Lakeway
& Dave Pelz Short Game
One World of Tennis Square
Austin, TX 78738

Arnold Palmer Golf School
9000 Bay Hill Boulevard
Orlando, FL 32910

Ben Sutton's Golf School
P.O. Box 9199
Canton, OH 44711

Berkshire School of Golf
Cranwell Resort
55 Lee Road
Lenox, MA 01240

Bertholy Method Golf School
Foxfire Village
Jackson Springs, NC 27281

Bill Skelley's Schools of Golf
Miami Lakes Inn & Golf Resort
Miami Lakes, FL 33014

Craft-Zavichas Golf School
600 Dittmer Avenue
Pueblo, CO 81005

The Florida Golf Academy
720 Goodlette Road, Suite 303
Naples, FL 33940

The Florida Golf School
Rolling Hills Resort
3501 W. Rolling Hills Circle
Ft. Lauderdale, FL 33328

Golf Digest Instruction School
5520 Park Ave., Box 395
Trumbull, CT 06611

The Golf School
Plantation Golf Resort
P.O. Box 1116
Crystal River, FL 32629

The Golf School
Mount Snow Resort
Mount Snow, VT 05356

The Golf School at Pebble Beach
P.O. Box M
Carmel, CA 93921

Golf University of the Midwest
Lodge of the Four Seasons
Lake Ozark, MO 65409

The Golf University at San Diego
2001 Old Hwy. 395
Fallbrook, CA 92028

Grand Cypress School of Golf
Grand Cypress Resort
1 North Jacaranda
Orlando, FL 32819

The Illinois Golf School at
Eagle Ridge Inn & Resort
U.S. Route 20, Box 777
Galena, IL 61036

Innisbrook Golf Institute
P.O. Drawer 1088
Tarpon Springs, FL 34688-1088

Jeri Reid's Golf School
2059 Southwest 15th Street
Deerfield Beach, FL 33442

Jimmy Ballard Golf Workshop
Doral Country Club
4400 NW 87th Avenue
Miami, FL 33178

John Jacobs' Practical Golf School
7127 East Sahuaro, Suite 101
Scottsdale, AZ 85254

John Schlee's Maximum Golf School
4923 Avila Avenue
Carlsbad, CA 92008

La Costa Golf School
La Costa Hotel and Spa
Carlsbad, CA 92008

Margo Walden Golf School
Seabrook Island Resort
P.O. Box 32099
Charleston, SC 29417

National Academy of Golf
490 Fourth Avenue South
Naples, FL 33940

Paul Tessler's Westgate Golf Center
3781 State Rt. 5
Newton Falls, OH 44444

Performance Golf Schools
Orange Tree Golf Resort
Phoenix, AZ 85254

PGA National Golf School
1000 Avenue of the Champions
Palm Beach Gardens, FL 33418

Pinehurst Golf Advantage
Golf Advantage Teaching Center
P.O. Box 4000
Pinehurst Country Club
Pinehurst, NC 28374

Pine Needles Golf Camps
Pine Needles Lodge & C.C.
Box 88
Southern Pines, NC 28387

Roland Stafford Golf School
Kass Inn
Route 30
Margaretville, NY 12455

The Sebring Golf School
281 U.S. 27 North
Sebring, FL 33870

Sports Enhancement Associates (SEA)
P.O. Box 2788
Sedona, AZ 86336

The Stratton Golf School
The Stratton/Scottsdale Corporation
Stratton Mountain, VT 05155

Swing's The Thing Golf School
P.O. Box 200
Shawnee-On-Delaware, PA 18356

SyberVision Golf School
11 Maiden Lane, Suite 400
San Francisco, CA 94108

U.S. Golf Academy
5203 Plymouth LaPorte Terrace
Plymouth, IN 46563

Vintage Golf Schools
Port Royal Resort
P.O. Box 5045
Hilton Head, SC 29938

Appendix 15-B

SAMPLE

FIVE DAY GOLF SCHOOL SCHEDULE

Sunday Evening

Dinner Sunday evening with introductions and explanation of the program, with start on Monday morning.

Monday

8:20	Meet near putting green outside golf shop — go to range
8:30	Welcome. Day's program and introduction to facilities
8:50	Warm-up and swing evaluations
9:15	Opening clinic — establishing a routine — Grip — Aim — Set-up
9:35	Skill Station #1
	Full Swing
	Bunker and Pitching
10:20	Refreshment Break
10:35	Skill Station #2
11:20	What's a swing? Drills to learn
11:45	Notebooks
12:00	Lunch and Rest
1:30	The psychology of golf — test and application — indoors
2:15	Stroke Saver System #1 and #2
2:30	Skill Station #3
3:15	Refreshment Break
3:30	On course
	Routines — Grip — Aim — Set-up
	Stroke Saver #1 and #2
	Up and down around the greens
5:00	Adjourn
Evening	Free/read notebooks on psychology

Tuesday

8:25	Meet on putting green
8:30	Opening daily clinic
8:50	Skill Station Session #4
9:35	Skill Station Session #5
10:20	Refreshment Break
10:35	The Fairway Wood and Long Iron
10:55	Skill Station Session #6
11:40	Notebooks — Stroke Saver #3 and #4
12:00	Lunch and Rest
1:30	Golf's misunderstood rules
2:15	Open ball hitting and practice time
3:30	On course management
	Routine — Grip — Aim — Set-up
	Stroke Saver System #3 and #4
	Pitch and Run — Lob — Bunker lies
5:00	Adjourn
Evening	Free/read rules books — definitions

Wednesday

8:25	Meet at putting green
8:30	Daily clinic
8:50	Practice session — Station #1
9:30	Practice session — Station #2
10:15	Refreshment Break

10:30	Practice session — Station #3
11:15	Uneven lies
11:45	Notebooks
12:00	Lunch and Rest
1:30	Physical training for golf — indoors
2:15	Putting tournament
2:45	Controlling trajectory high and low
3:30	On course
	Routine — Grip — Aim — Set-up
	Stroke Saver System #5 and #6
	Uneven lies and rough
5:00	Adjourn
Evening	Free/go over practice information

Thursday

8:25	Meet on putting green
8:30	On course
	Routine
	Positive Visualization
10:30	Refreshment Break
10:45	Maneuvering the Ball — left to right, right to left
11:30	Positive practice, using routine
12:00	Lunch and Rest
1:30	Questions and catch-up
2:15	Short game, up and down tournament
3:30	Refreshment Break
3:45	Open practice or play
5:00	Adjourn
Evening	Free/read Notes — prepare final questions

Friday

8:00	Nine hole tourney
10:30	Refreshment Break
10:45	Final practice session — short game
11:10	Final review session — full swing
12:00	Closing comments

Appendix 15-C

GOLF SCHOOL FOLLOW-UP

Information Sheet

Since the school my scores have:

☐ Improved. If improved, how much for 18-holes? _____

☐ Stayed the Same

☐ Gotten Worse. If worse, how much for 18-holes? _____

Here is an evaluation of my golf since the school. (Please check appropriate column)

	Better	Same	Worse
Full Swing			
Putting			
Chip and Pitch			
Bunker			
Course Management			
Psychology			
Enjoyment			

My rating of the quality of the instruction and material presented at the school.

Outstanding	Very Good	Good	Poor	Very Disappointing

General comments on the effect the school had on my game or on me as a person:

_____

_____

_____

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_____

Name (optional)

Appendix 16-A

GLASSES AND VISION PROBLEMS FOR GOLFERS

by: Dr. Curtis D. Benton*

How many senior golfers wear glasses for golf? At least one per foursome. If you're that one, you ought to consider special glasses for golf. But, what kind?

Up to their mid-forties, those wearing glasses probably need only single vision lenses, that is, lenses that have no bifocal. There is no problem for them looking down, up or sideways; the focus is all the same. That rule holds true unless you get into rather strong prescriptions where the element of distortion creeps into the picture. Golfers who need such prescriptions often wear contact lenses. They correct vision as near normal in every way as is possible to do and are ideal for golf. But not everybody has the desire or the ability to wear contacts successfully.

Getting Fitted

Back to the glasses. If you need glasses for clear distance vision, your best golf glasses are single vision lenses. There is no bifocal to get in your way and cause you to see two balls where one should be.

Perhaps you can't see the scorecard well enough to read the yardage or mark the scores and thus, prefer bifocals. If so, have the segments set very low in the lenses or even shifted a bit to the right of center (if you are a right-handed golfer). That way the bifocal area will not interfere with play but will be present for use in seeing the scorecard.

If your distance vision is satisfactory without glasses but you can't see up close, take along a pair of reading glasses to slip on easily when you want to read the rules sheet or the scorecard.

In selecting frames for your golf glasses, choose ear pieces that curve enough around your ears to hold the glasses nicely in place when you bend your head over to putt. Some golfers even use an elastic strap around the back of the head to hold the glasses firmly in place. The old "wrap around" ear pieces that now are hard to find work best of any.

There's a flurry of interest these days in ultraviolet light, with the suggestion that it is part of the cause of cataracts and other eye problems. While it is true that cataracts are much more common in the world's sun belt, there appear to be other factors such as heredity and nutrition. The final vote isn't in yet but certainly there is no reason to panic. If you do wear tinted glasses for golf, and you want to fully protect yourself from ultraviolet light, ask for the new filter that effectively blocks all wave lengths shorter than 400nms.

Nearsighted or Farsighted

Watch the next couple of foursomes approach the tee at your home course. Most of the players are about the same height, usually considered as average, but a few are decidedly taller and some are somewhat shorter. Eyes come in somewhat the same distribution. Some are longsighted, most are medium (normal) and some are shortsighted.

To understand farsightedness think of the last time a grandchild came running up to you and thrust his or her newest work of crayon art a putter head distance from your sunburned nose. Your sight is only clear far beyond that distance.

Now shift the scene to the first tee. A farsighted person, if only slightly or moderately farsighted, can see the green and the flag but possibly can't read the name printed on the golf ball as he addresses his drive. If a person is severely farsighted, the green is too close to be seen clearly and he or she must wear magnifying glasses to bring it into clear focus. But even with normal eyes you'd need a magnifying glass to see your grandchild's masterpiece near the tip of your nose or to see a tiny splinter in your finger. On the other hand, the nearsighted golfer's eyes are too strong. They have their own built-in magnifying glass, as it were. From the first tee they can't even see the fairway bunker, much less the green, without glasses that reverse the magnifying effect. If a normal-eyed person looks through a nearsighted person's glasses objects look smaller than they really are.

Astigmatism

To complicate matters, there's a condition called astigmatism. This is due to the shape of the eyeball when it is out of round, rather like a golf ball when it leaves the clubface. Hold up a clear, smooth, straight glass of water. We call its shape a cylinder. Look at someone's face through the glass of water and see how it is stretched out like a chipmunk with a golf ball in each cheek pouch. Now if you tilt your glass sideways, right or left, the distortion shifts accordingly.

Golfers with uncorrected astigmatism (an astigmatism can be present along with far-sighted, nearsighted or otherwise normal-sighted eyes) see things fatter, thinner or on a slant.

Astigmatism is corrected by glasses shaped like cylinders which slant objects in the opposite direction, resulting in a proper squaring up of the landscape.

An excellent senior golfer, holder of several titles, came to me a couple of years ago complaining that he couldn't read the breaks of the greens with his new glasses. He had been given a correction for farsightedness and astigmatism, but the cylinder was tilted several degrees the wrong way. When I prescribed proper glasses his putting improved dramatically.

Other Problems

Golfers who are seniors by some years also may develop eye diseases characteristic of aging. I'll mention only cataracts and macular degeneration. With cataracts there is a gradual dimming and blurring of vision. With macular degeneration there is a fading of the central portion of the total span of vision, called the visual field.

Typically, golfers with either of these conditions lose sight of the golf ball as it leaves the tee or the ground and have to ask where it went. Sometimes they spy a ball in flight or when it hits the ground and bounces, for motion is perceived more easily.

If one eye goes bad or out of line with the other, there is a loss of judgment of depth. It is amazing, however, how well that defect can be overcome.

One of the best senior golfers with whom I play has only one eye. When he is uncertain as to the smoothness of the ground where his ball lies he looks at it from two directions. He also pays close attention to yardage markers instead of relying on eyeball judgment of distance. He's a tough competitor and can beat most of his two-eyed opponents.

Your problems in judging distances may not always have to do with your eyesight. Even with normal eyesight, geographic and atmospheric conditions can affect a golfer's visual perception.

When playing at the foot of steep mountains, such as Palm Desert or Colorado Springs, huge mountains dwarf the foreground. This makes the course look smaller than it really is and you tend to hit short. Flat courses also cause underclubbing at first. When I first moved to Florida from Atlanta, Georgia, I had to relearn judging distance, at first being one or two clubs short because of a lack of ground contours. You will find that hillocks and elevated greens help you to make more accurate distance judgements. Also, low gray clouds tend to shorten perspective whereas brilliant sunshine stretches the distances out a bit.

All of which has to do with the eyes and the game of golf. And let me urge you, in the interest of getting the most out of your game, to have your eyes checked annually by an ophthalmologist. If you can find one who plays golf, all the better. He'll understand your frustrations.

*Adapted from "Senior Golfer" Magazine.

Appendix 16-B

A CODE OF ETHICS FOR DEALING WITH JR. GOLFERS

Adapted from National High School Athletic Coaches Association

As a professional businessperson and leader, the golf professional should:

- Exemplify the highest moral character as a role model for young people.
- Recognize the individual worth and reinforce the self-image of each junior player.
- Encourage and assist players to set personal goals to achieve their highest potential.
- Create a set of training rules for juniors which reflect the positive values of abstaining from the use of drugs, alcohol and tobacco.
- Strive to develop the qualities of leadership, initiative and good judgement in each junior player.
- Communicate and interpret program goals and objectives to parents and community.
- Provide a safe environment for practice and competition.
- Teach and abide by the rules of the game in letter and in spirit.
- Promote personal fitness and good nutrition.
- Be modest in victory and gracious in defeat.
- Encourage a healthy respect for the game, its rules and traditions.

Appendix 16-C

A MESSAGE TO SCHOOL OFFICIALS AND MEMBERS OF SCHOOL TEAM OR CLASS GRANTED PLAYING PRIVILEGES

Permission granted by local golf course managements for use of facilities by members of the golf class or school golf team is a gesture of mutual concern for enriching the golf experiences of youth. Such cooperation should never be abused. It is the duty of the school golf instructor or coach to confirm arrangements with the management so that no misunderstandings will occur. Scheduled time periods, registration procedures and any restrictions regarding use of course facilities should be clearly defined.

The conscientious teacher or coach will view such privileges as an opportunity to educate his pupils in proper clubhouse and course procedures. Written regulations, accompanied by informative discussion, should be given to students prior to their initial experience at the course. Such regulations should contain guidelines for appropriate conduct in the following suggested categories:

General Privileges Granted And Player's Responsibilities

Emphasize to the student that playing privileges were extended only to him or her as a member of a designated group and under no circumstances should outsiders be invited to play.

Relationships With Course Officials

Outline procedures for arranging tee-off times, registration at the golf shop, acknowledgment with the golf course starter and any other preparations requested by the management.

Relations With Members And/Or Patrons Of The Golf Course

Inform players that as guests on the course they should be alert not to interfere with the normal routine of play by members or patrons. Policy should be set regarding school players joining other groups on the course and for "playing through" procedures.

Dress And Appearance

Appropriate dress should be stated with specific restrictions mentioned.

Personal Conduct

Knowledge of rules and etiquette, respect for course maintenance, alertness to safety precautions and adherence to correct playing procedures all create positive impressions in those who observe the student and reflect the excellence of instruction received by his coach.

Editor's Note: Increased golf course play and school team competition reflects the need for a pronounced awareness of proper etiquette and pace of play during use of the golf course and its facilities. The above considerations have been presented to assist the golf course manager, golf instructor and coach in conveying to the player, student and team member, the true meaning of the word, "golfer." Acknowledgment is made to Dr. Pete Zidnak, San Jose State College, whose thoughts greatly contributed to the original content of this message. For additional information contact:

National Association of High School Golf Coaches and Administrators
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Raymore, Missouri 64083
(816) 322-3180

Appendix 16-D

THE ROLE OF THE GOLF COACH

by: Richard D. Gordin, Ph.D.

Golf coaching is relatively new to the profession of physical education and athletics. In the boys' teams of the early years, a football or basketball coach was assigned this responsibility in his off-season. In essence, he was a glorified manager and chaperone. Girls' teams had little or no organization with a department member as chaperone. For the most part, this type of arrangement is passing from the school scene and is being replaced by one in which knowledgeable people, whose primary interest is golf, are the coaches.

With this in mind, it is apparent that the position of golf coach is changing, and the outstanding coach will be one who is aware of techniques in both the skills and mental areas of the game. In golf coaching, as in all other areas of coaching, the more knowledge one acquires, the better coach one will be.

The ideal golf coach is a person who knows the golf swing well; who understands the mental side of the game; who is able to communicate with the players and, therefore, is able to help each player reach his greatest potential. A coach may make progress toward this ideal by improving himself or herself in weak areas.

Player Selection

At both the high school and college levels it is important to encourage young players who have an interest in golf. This can best be done by keeping them on the team and creating competitive situations in which they can be constantly challenged. The simplest, fairest way to place the players in position is by a seventy-two hole qualifying tournament. If this is not always possible due to time, course conditions or some other reason, fifty-four holes would suffice. But to select with less than that number of holes is not really a true test. The result of this qualifier places the players in position, but these positions may be changed by several methods:

1. Running Strokes Total
   (a) A total of all qualifying and competitive rounds kept. Players change positions according to this total.
2. Ladder — Challenge System
   (a) A player may challenge up one position. If one is defeated he or she must accept a challenge from below before challenging up again. The coach should approve and set up all challenge matches.
3. Coach's Judgment
   (a) The coach reserves the right to change positions at any time or to insert or remove a player from the line-up at any time.
   (b) It is good to attempt to achieve complete objectivity in player selection, but the coach must accept the duties and obligations of the position; one of which is using his or her knowledge to put in the best line-up on any given day.

The general philosophy is to keep as many players on the team as is possible in a given situation, giving them competition through varsity, junior varsity and freshman teams. The more players interested and playing, the greater the possibility of development, which makes for good teams now and in the future.

A Physical Conditioning Program

In golf, as in any sport, good physical condition for each player is imperative. The stronger one is, the better he is able to be firm throughout the swing and develop clubhead speed.

The conditioning program should be aimed at strengthening the back, trunk, left side and the legs. These parts of the body are the keys to being a good, strong player. This program should be started several months prior to the season and maintained at a less strenuous degree throughout the playing season.

The best exercises are those which simulate the golf swing. Create resistance for those muscles which are used in the golf swing, then through repetitions and an increase in weight, the muscles are made stronger. Don't keep the physical out of golf coaching.

Some exercises for left side strengthening are:

1. Squeeze a rubber ball or a grip strengthener with the last three fingers of the left hand.
2. Stand in the hitting position and apply pressure with the left hand against a door frame.
3. Attach a dowel pin or an actual grip taken from a club to a rubberized cord which is attached to a wall. Stand in the hitting position and go through the swing a number of times. The flexible cord creates the resistance.

Some exercises for developing leg strength are:

1. Running, cycling or power walking.
2. Knee bends, preferably ¼ or ½ bends. As strength is improved, add weight by using a barbell on the shoulders.
3. With the barbell on the shoulders execute the golf pivot. Start with light weight and a few repetitions; then add both weight and repetitions as the strength improves.

Mental Conditioning

It is in this area that the coach can be of the greatest help to the players. There are two areas within the mental side of the game. One is the actual thinking of one's way around the course, called *strategy*; the other, called *course management,* is preparing one's self to compete and then performing during the competition.

STRATEGY: In the strategy area the best method of teaching is to accompany the player in practice rounds and help him think through each shot before playing it. It is possible to save four to five shots per round for the young player simply by helping him choose the right shot, the right club and convincing him that he can bring off the shot. It is a very convincing method, as well, for the player is able to see how one can improve his score by planning the shot well. Spending time with each player also provides the coach with an excellent opportunity to teach the rules and etiquette and also how knowledge of the rules can benefit the player when a rule situation arises. The National Golf Foundation film, "Courtesy on the Course," should be shown to the team at an early meeting.

MANAGEMENT: The other phase of the mental — ability to perform or management of one's self is not so easily described nor is it easy to teach. It is of greatest importance, however, in successful competing. The prime requisite and key to winning and success is CONFIDENCE. There never has been a great athlete in any sport who did not believe that he was the best. This attitude is best tempered with humility, but nevertheless, it must be present for success. A negative thinker cannot play winning golf. You are what you believe you are. You must place your goals high and strive diligently to reach them. This belief in yourself stimulates power from within to reach these heights.

It is the coach's job to instill this confidence in those who do not have it. This frame of mind can be established through successful practice and play plus encouragement from the coach. All practice methods should be directed toward this end. Pre-tournament practice should be directed toward building confidence. (Example: emphasize player's strong points.) The attitude during the round should be one of patience and relaxed confidence, remembering that rhythm and power are generated from confidence. One must be aware that stiff, jerky movements are the result of insecurity and lack of confidence.

Another attribute of the successful player is a constant, level ATTITUDE. One does not become too elated when playing well nor too depressed when playing poorly. One learns to accept what happens to him with little or no emotion and keeps on doing the best he can possibly do under the circumstances. The successful player does not alibi. He accepts the responsibility for his poor play and the credit for his good play equally and without undue visible emotion. These are mental attitudes which must be present for winning golf. All of the truly great players think this way...they have control!

Error Correction

Error Correction is a swing mechanic area in which a coach must be vitally interested. In keeping with the positive approach advocated throughout this paper, error correction should be done in a *positive manner*. It is necessary that you, as coach, recognize and understand swing errors. Your correcting should be done by emphasizing *sound swing fundamentals.*

Make your players conscious of target and relate grip, stance, takeaway, throughswing and follow-through to target. By so doing, you are emphasizing *what is right* rather than what is wrong. The setup position and alignment with target cause more trouble with the low handicap player than any other fundamentals. If you can help your players get aligned properly and know what it means to be aligned with target, you will have accomplished a great deal. By attending PGA seminars or National Golf Foundation clinics, or by reading publications and watching videos, you can become more accomplished in error recognition and correction. If you emphasize what a player does *well* rather than concentrating on what he does wrong, you will help him become a better player because he will then want to improve his weak areas more. Naturally if you are not capable of helping a player with swing fundamentals, you should direct him/her to a PGA or LPGA golf professional, preferably the one at the club where you play your matches.

Practice sessions will be dependent upon practice facilities and time available. However, on the next page is an example of a typical mid-season practice session assuming normal practice facilities (range and golf course).

3:30 - 3:45 p.m.	Team meeting to analyze rounds. Round analysis sheets showed that short iron play was inconsistent; therefore, practice time should be spent in this area. Emphasize and demonstrate short iron fundamentals.
3:45 - 4:15 p.m.	Practice range — each player hits 100-150 short iron shots to a target. Coach circulates among the group throughout the session helping each player. Emphasize accuracy — not distance.
4:15 - 5:45 p.m.	Send players out in twosomes to play nine holes. Emphasize short iron improvement. Coach watches all players by using golf car.
5:45 - 6:15 p.m.	All players go to putting green. This putting practice should be a part of *every* practice session.

Practice Techniques

1. Always swing toward a target.
2. Hit ten balls with each club and step off the yardage to discover how far you hit with each club.
3. When practicing high and low trajectory shots, actually hit over and under objects (trees, bushes, etc.).
4. In pitch-and-run practice and putting practice, *emphasize correct distance* by hitting to a circle (3 feet in radius).
5. In short putt practice, putt to a tee stuck in the green. This emphasizes extreme accuracy and makes the hole appear very large.

SUMMARY

Golf coaching is becoming an increasingly more prominent aspect of the physical education and athletics profession. Competition is keen and coaches want to become better. They must attend clinics and seminars. They must read, watch, and talk with the PGA Professional and utilize golf materials made available to them. In addition, *if coaches will show interest in their players,* by encouraging them, teaching them, showing them ways to acquire good physical conditioning, and by emphasizing a sound mental approach to the game, *the players will do the rest* and a successful team will be the result.

Appendix 16-E

HOW TO SET UP AND RUN A JUNIOR GOLF CAMP

The following information may be of assistance in planning and conducting a golf camp for Juniors. There are many aspects to consider. Sample portions from an operations booklet for a Junior Golf Camp are listed below:

Objective

The PGA National Academy of Golf for Juniors was conceived with the knowledge that the key to the growth of golf is player development at the Junior level. *The objective of this academy is to train future leaders through golf.* We want good citizens as well as good golfers. This guide has been developed for 66 youngsters per week, and can be adapted to your particular situation. The purpose of your academy should be to afford the youngsters the opportunity to:

1. Learn swing fundamentals, the rules of the game, its history, the equipment, course design, course etiquette and the spirit of competition and fair play.
2. Make friends with fellow students and faculty.
3. Have fun in a loving-learning environment.

PROGRAM

Because of the many aspects considered when developing the concept of a golf academy, it is important to determine the priorities involved and take them one step at a time. The following is an outline of the areas on which to focus attention:

I. Staffing

There is no Junior Program, camp or academy that is going to run itself. Any success will depend on a team effort of people dedicated to attaining the objective of the program. To that end, it is critical to find people who relate well to youth and good role models. They must be willing to devote the time and effort necessary to make your program a success. It's hard work to do it right. The staffing requirements for the National Academy are listed below and may provide direction in choosing your own.

— Director (1)
— Coordinator or Assistant Director (1)
— Secretary (1) (Also dormitory counselor)
— Intramural Director (1)
— Teaching Professionals (6) (Double as dormitory counselors and drivers plus 2 to 4 assistants)
— Technical Assistants (Audio/Visual) (2)
— Visiting Guest Clinicians (6)
— Night Watchman (1)
— Nurse (Hours to be specified)
— Doctor (Make arrangements to have a local Doctor on call for the duration of the Academy)
— Staff (For food service, maintenance and grounds, and housekeeping provided under facility contract)

1. Information Requested of Staff:
   (a) Short biography, including playing and teaching experience, course records, awards, civic involvement, etc.
   (b) Social Security number for honorariums
   (c) Clothing sizes
   (d) Will they stay on campus or commute?
   (e) If traveling by plane, what is itinerary?
   (f) If touring professional clinician requests, we will make travel and lodging arrangements.
2. Copy teaching and advisory staff on promotional materials and master program schedule.
3. Advise touring professionals of nature of clinic and what areas we would like them to emphasize.
4. (a) Order appropriate gifts
   (b) Put together packet consisting of student kit, shirt, visor, bag tag, etc.
   (c) Schedule pickup and return to airport
   (d) Have honorarium at Academy to give to them before they leave.

II. Course and Range Facility

Regardless of the size of the group you plan to have for any one session, it is essential that the setting provide ample space for both the regular individual instruction as well as for your group. It would complicate the efforts of the teaching staff if other golfers were on the range or course during instruction periods. Try to ensure that those portions of the range and course which you will use are yours exclusively during instruction periods. The following can be used as a guideline:

1. Allow at least 10′x10′ per pupil on the range line.
2. Put left-handers on the far right end of the hitting line.
3. Have a bunker or bunkers large enough to handle a group.
4. Set up your practice area with safety in mind.
5. Measure practice range width (number of stations) and depth — consider shade.
6. Golf course — exclusive use for on-course instruction and play.
7. Range — need 600 dozen balls and pick up while hitting.
   (a) Secure the balls until each session starts or supervision is provided.
   (b) Select clean-up team for day to assist in peripheral range pickup.
8. Arrange bag storage overnight — locked (no charge) — or allow students to take clubs to rooms each evening. An attendant must guard clubs at range during lunch hour.
9. Arrange for audio-visual equipment storage — locker.
10. Have practice greens and range mowed regularly.
11. Provide tent for protection of AV equipment and rest spot for students during day.
12. Check power source for AV equipment and extension cord.
13. Provide tables on range, plus chairs.
14. Obtain golf cars for staff use.

15. Provide coolers of ice water on range with cups.
    (a) Early morning — 8:30 a.m.
    (b) Early afternoon — 1:30 p.m.
16. Get OK for certain vehicles (cars, vans) to park at range.
17. Materials needed on range and practice greens:
    (a) Tees
    (b) Station markers
    (c) Stanchions and ropes for safety to separate testing area from station
    (d) Flagsticks for green and range — need to sink cups on large green for Jr. Medalist testing.
    (e) Cups and putting hole markers for putting stations
    (f) Additional markers for Jr. Medalist testing (assorted colors if possible)
    (g) Rakes for bunkers
    (h) Towels
    (i) First-aid kit
    (j) Gatorade™ (or similar beverage)
    (k) Insect repellant
    (l) Sun lotion
    (m) Instant cold packs for minor accidents
    (n) Empty golf bag prominently marked LOST CLUBS
    (o) Scorecards for free time play
    (p) Learning Aids
18. Secure staff headquarters to house guest clinicians.
19. Select which staff members may charge on master account.
20. Copy housing facility and golf head professional on all promotional publicity.
21. Send letter of agreement to the facilities.
22. Visit facility at least twice — once two to three months in advance and once two to three weeks in advance of first session.
23. Send thank you letter to facility and head professional, noting feedback from students.

The remaining topics list only the headings and not the details due to space limitations.

III. Food and Lodging Arrangements

IV. Promotion and Publicity

V. Student Handouts

VI. Student Arrivals and Departures

VII. Student Kits

VIII. Registration Procedure

IX. Photography

X. Student Checkout Procedure

XI. Closing Ceremonies

The following statement reflects a CODE OF CONDUCT and rules that were presented to the students at the opening session. Each camper was asked if there was any reason why they couldn't abide by the rules. Otherwise, they would be expected to live up to the code.

In order to conduct the game of golf in an equitable manner, it is necessary to have a strict but fair code of rules. It is even more important to have rules by which people agree to abide when brought together in a living situation like this camp. In golf, severe breaches of the rules are grounds for disqualifications; this is also true at the PGA National Academy of Golf. The purpose here is to learn, make friends, develop our talents and have fun. Here are the rules under which we do that:

Rules:

The Academy does not allow:

1. Gambling on or off the golf course.
2. Smoking at any time.
3. Use of private automobiles or unauthorized trips off the campus. (Car keys are to be turned in at registration).
4. Violations of curfew — 10:30 p.m. each night, unless other time designated.
5. Absence from any scheduled sessions unless by permission of the Director.
6. Any conduct which would cause harm or embarrassment to the Academy or any individual connected with the Academy.
7. Use of the pool except when guarded by a staff member.
8. Hitting golf balls on the range until supervisors are present. No balls to be hit on campus except during intramurals.
9. Drugs or alcohol on the premises.
10. Students driving golf cars unless requested by staff.
11. No boys allowed in girls' dorm and vice versa except in the lounge.

Etiquette

You are expected to:

1. Have your bed made and room clean each morning before leaving for the course.
5. Not wear spikes in the dormitories, classrooms, infirmary or cafeteria.
4. Be on time for vans and sessions.
5. Stop all noise including radios, etc., by 10:30 p.m.
6. Not tie up the telephones unreasonably.
7. Dispose of all litter and pop cans in the trash barrel after use on campus grounds, classrooms, golf course or vans.
8. Return lost items to Academy secretary at infirmary or during meals.
9. Use the rest period to REST!
10. Call students by their given names rather than nicknames which could offend.

General Information

1. You may obtain change, stamps and supplies from the Academy secretary as well as leave letters to be mailed, at meal times or after the evening program.
2. There are animals on the grounds at night so stay on roads and sidewalks and carry a flashlight.
3. Do not continue play on the golf course if lightning is in the area. Get to a shelter at the first sign of lightning. Stay there until advised to continue.
4. Your intramural team will be assigned one day of clean-up in the dining hall and on the course. Be sure you know when it is and participate.
5. Do not leave valuables in your room. We suggest you check them with the secretary. Lock your room when you leave.
6. Please respond to the 10:30 p.m. bed check when you hear the knock by opening your door. If you are asleep and have left your door unlocked for bed check, it will be locked by the counselor.
7. Call home during the first day so your parents know that you are all right.
8. Hang up your dorm towels after use so they are reusable.
9. Early bird swim or jog is open to anyone. Drape your towel over the top of the door if you wish to awakened. Runners begin at 6:40 a.m. Pool closes at 7:00 a.m.
10. Shirts must be worn at all times on campus, course or when we are in session. Visors are to be removed in the dining room.
11. There will be a nurse available for sick call each morning from 7:15 a.m. - 8:15 a.m. and 5:30 p.m. - 6:20 p.m. in the infirmary. Please report any illness or accidents, no matter how minor.
12. Please sit with your intramural team at dinnertime. The tables will have the team names on them. Breakfast and lunch have open seating.
13. Report any allergies or special medical conditions to your counselor-coach and to the camp Director. This is to be done after the evening program on the first night.
14. South Florida has gnats in mid-summer. Students will be provided with repellant but beyond that, there is no spraying on individuals that is effective.
15. Any items on the campus that are broken by a student will be charged to the student, and the bill sent to the parents.

That's It!

From arrival to departure. There are a lot of details. In fact, many have been omitted because of space limitations. But you'll develop your own way as you discover the best means of doing things in your situation.

In summary, the most important points are:

1. The health and safety of your students must always be given top priority.
2. The more advance planning and attention to detail, the more success you'll enjoy.
3. The experience for the youngsters should be both educational and fun.

Appendix 17-A

PHYSICAL TRAINING FOR GOLF*

by Gary Wiren, Ph.D.

Golfers can use weight training to increase strength, flexibility and muscular endurance. It helps develop balance for golfers with weak leg muscles and allows the athlete to assume advantageous biomechanical positions.

A golfer's technique reflects the natural selection process of determining one's own assets and finding a style to fit them. Depending on the selected technique, golfers will vary in their strength emphasis. Generally, hands, forearms, trunk rotators, back, abdomen and legs are the most important areas of emphasis.

Strength in golf is of little use without flexibility. Most men with whom I work need more flexibility than strength. The opposite is generally true for women, they need more strength. Golf is a rotary activity, so exercise emphasizing the rotary movements of the trunk are extremely important.

Other effective techniques for increasing strength for golf could include a program of calisthenics and the swinging of a weighted club (both for strength and flexibility).

Golf is not a leader in the world of weight training for improvement in performance. The acceptance of improving strength and flexibility through weight training is relatively new to the sport, and is an important breakthrough.

The training programs that follow are rigorous off-season, pre-season and in-season workouts. They are for the golfer athlete who is interested in competition. These exercises are strenuous and should not be attempted without a doctor's consultation. *Train Don't Strain.* Following the programs are more complete descriptions of each exercise pictured from the program — note the reference in the lower left hand corner.

* Reprinted from *Getting Stronger* by Bill Pearl and Gary T. Moran, Ph.D. © 1986 Shelter Publications, Inc., Bolinas, Calif. Distributed in bookstores by Random House. Reprinted by permission.

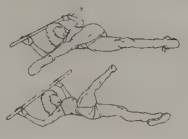
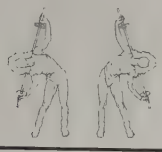
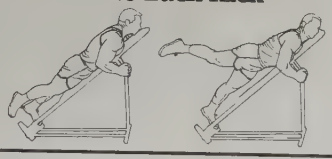
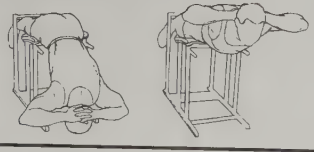
GOLF OFF-SEASON PROGRAM

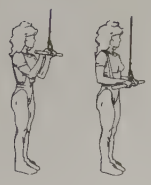
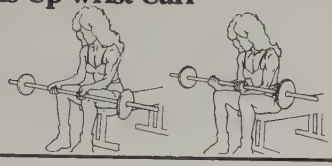
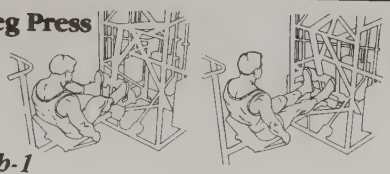
Aims:

The off-season program is designed to strengthen all major muscle groups and to provide proper muscle balance.

Days per week:

Three days, with one day rest between workouts.

Exercises	Sets	Reps
1 Lying Leg Crossover  *See A-9*	1	15 to 25 each side
Optional Leg Pull-In *See A-6*	1	10 to 25
2 Seated Barbell Twist *See A-5*	1	20 to 50 each side
Optional Barbell Side Bend  *See A-2*	1	15 to 30 each side
Optional Incline Back Kick  *See A-10*	1	25 to 50 each leg
3 Hyperextension  *See B-2*	2	8 to 15 per set

Exercises	Sets	Reps
4 Rear Deltoid Raise *See S-1*	2	10-10
5 Tricep Press Down  *See Tr-2*	2	10-10
6 Palms-Up Wrist Curl  *See F-1*	1-2	15 to 20 per set
7 Palms-Down Wrist Curl *See F-2*	1-2	15 to 20 per set
8 Leg Press  *See Th-1*	2	15-15 per set

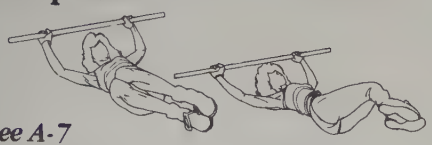
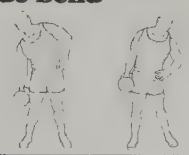
GOLF PRE-SEASON PROGRAM

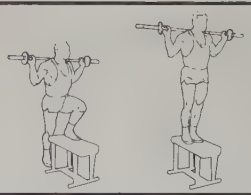
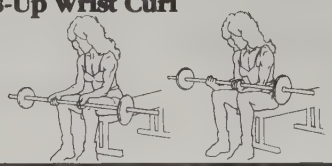
Aims:

The pre-season program is similar to the off-season program, but with different exercises for certain body parts. During this time, more time is spent golfing and working on specific golfing skills. Always remember to include some form of cardiovascular training.

Days per week:

Two days, with one-two days rest between workouts.

Exercises	Sets	Reps
1 Hip Roll  *See A-7*	1	15 to 25
2 Dumbbell Side Bend  *See A-3*	1	20 to 30 each side
Optional Twisting Bend *See A-4*	1	10 to 20
3 Hyperextension *See B-2*	1	10 to 20 each side
Optional Side Leg Raise *See A-8*	1	25 to 50 each leg
Optional Leg Crossover *See A-9*	1	15 to 30 each leg

Exercises	Sets	Reps
4 Rear Deltoid Raise *See S-3*	2	10-10 each arm
5 Tricep Curl *See Tr-1*	2	10-10 each arm
6 Stand-Ups  *See Th-2*	1-2	10 to 15 per set each leg
7 Palms-Up Wrist Curl  *See F-1*	1-2	15 to 20 per set
8 Palms-Down Wrist Curl *See F-2*	1-2	15 to 20 per set

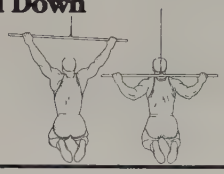
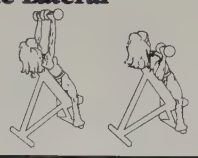
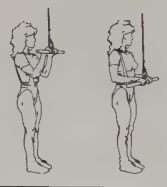
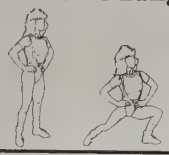
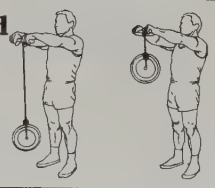
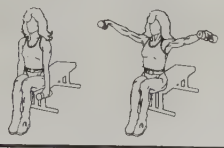
GOLF IN-SEASON PROGRAM

Aims:

The in-season program is designed to maintain levels achieved during the off- and pre-season programs. In season, hip, wrist and forearm work can be optional.

Days per week:

Two days, with one-two days rest between workouts, and two days rest before competitions. Some golfers are more relaxed and swing more smoothly if they have a weight workout on a golfing day, or one day prior to golfing. Others need more time off before golfing. Find the schedule that works best for you.

Exercises	Sets	Reps	Exercises	Sets	Reps
1 Hyperextension *See B-2*	1-2	5 to 10 per set	**4 Rear Lat Pull Down**  *See B-1*	2	10-10
2 Bent-Knee Sit-Up *See A-1*	1	10 to 20	**Optional Incline Lateral**  *See C-1*	1-2	10 (10)
3 Seated Barbell Twist *See A-5*	1	15 to 30 each side	**5 Tricep Extension**  *See Tr-2*	2	10-10
Optional Freehand Side Lunge  *See Th-3*	1-2	10 per set per side	**6 Roller Wrist Curl**  *See F-3*	1-2	Floor to top
Optional Side Lateral Raise  *See S-2*	1-2	10 (10)			

Exercise Options:

1. *Circuit training*
2. *Nautilus, pulleys or cable exercises*
3. *Weighted club exercises*
4. *Sport-specific resistance exercises that copy swing*

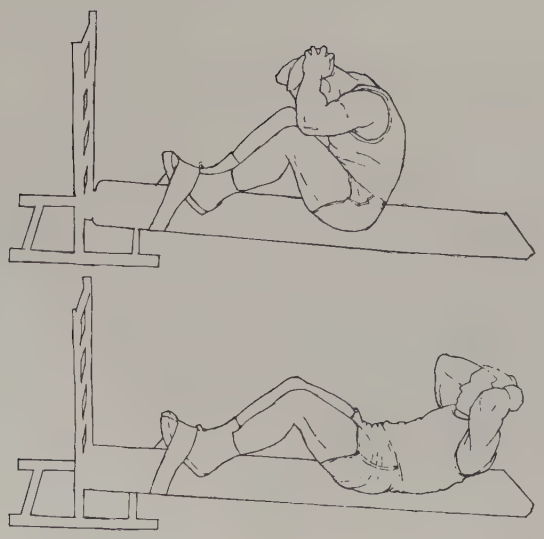
Problem Areas:

1. *A year-round flexibility program is very important.*
2. *Pay attention to individual strengths or weaknesses when devising programs.*
3. *Some type of cardiovascular conditioning should be done year-round: biking, swimming, aerobics, circuit training, running.*

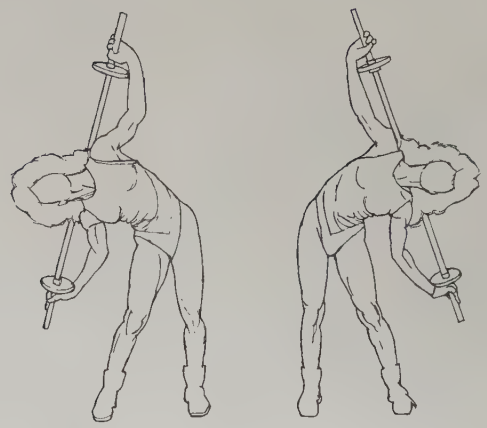
Additional Exercises:

1. *Machines may be substituted*
2. *Dumbbells may be substituted*
3. *Leg extensions*
4. *Step-ups with weights*
5. *Lunges with weights*
6. *Shoulder shrugs*
7. *Lateral dumbbell raises*
8. *Medicine ball exercises*

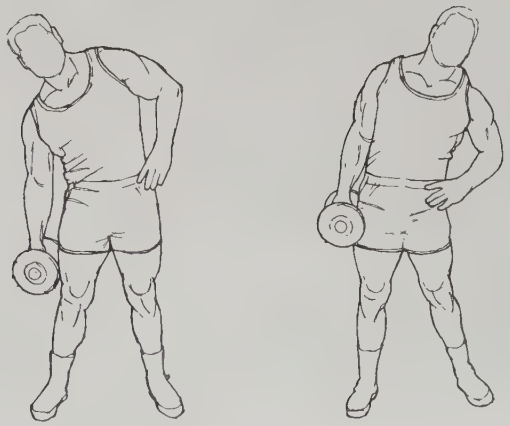
ABDOMINALS



A-1
Bent-Knee Sit-Up
Upper Abdominals
- *Hook feet under strap of sit-up board.*
- *Keep knees bent 45°.*
- *Put hands behind head, chin on chest.*
- *Lie back until lower back touches.*
- *Return to starting position.*
- *Inhale down, exhale up.*
- *To make harder, adjust bench to higher angle.*



A-2
Barbell Side Bend
Obliques
- *Stand erect, feet 16" apart.*
- *Place light barbell on shoulders.*
- *Keep back straight, head up.*
- *Bend to right as far as possible, then bend to left as far as possible.*
- *Bend at waist only, not at hips or knees.*
- *This exercise can also be done seated.*
- *Inhale to right, exhale to left.*



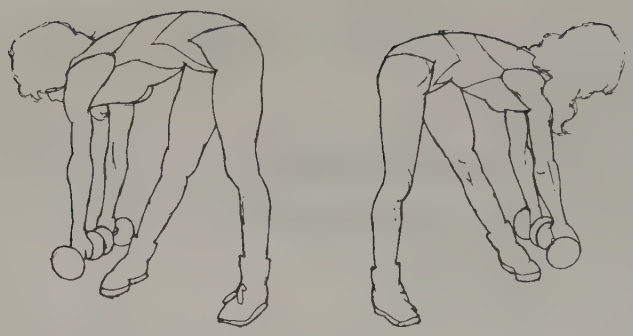
A-3
Dumbbell Side Bend
Obliques
- *Stand erect, feet 16" apart.*
- *Hold dumbbell in right hand, palms in.*
- *Place left hand on waist.*
- *Keep back straight.*
- *Bend to right as far as possible, then bend to left as far as possible.*
- *Change weight to left hand and repeat movement.*
- *Bend at waist only, not at hips or knees.*
- *Inhale to right, exhale to left.*
- *Can be done with free hand on side of head.*

A-4

Alternated Twisting Dumbbell Bend to Opposite Foot

Obliques and Lower Back

- *Stand erect, feet 16" apart.*
- *Hold dumbbells, palms in.*
- *Keep back straight, head up, hips and knees locked.*
- *Inhale and twist torso to right, then bend, holding twist until dumbbells nearly touch right foot.*
- *Return to starting position and exhale.*
- *Repeat movement to left side.*
- *A movement to the right and left equals one rep.*

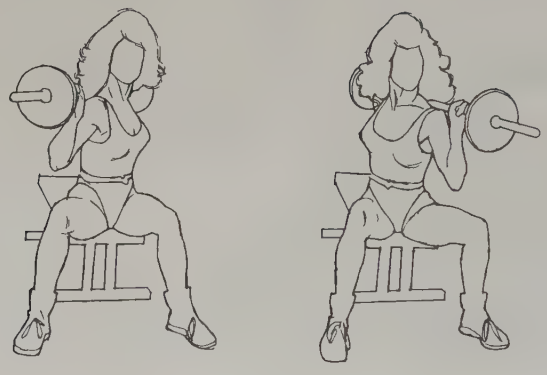


A-5

Seated Barbell Twist

Obliques

- *Place light barbell on shoulders.*
- *Sit at end of bench, feet firmly on floor.*
- *Twist torso to right, then to left by twisting at waist only.*
- *Do not move head from side to side.*
- *Keep back straight, head up.*
- *Inhale to right, exhale to left.*
- *Can also be done standing.*
- *Can also be done holding dumbbell next to chest.*



A-6

Leg Pull-In

Lower Abdominals

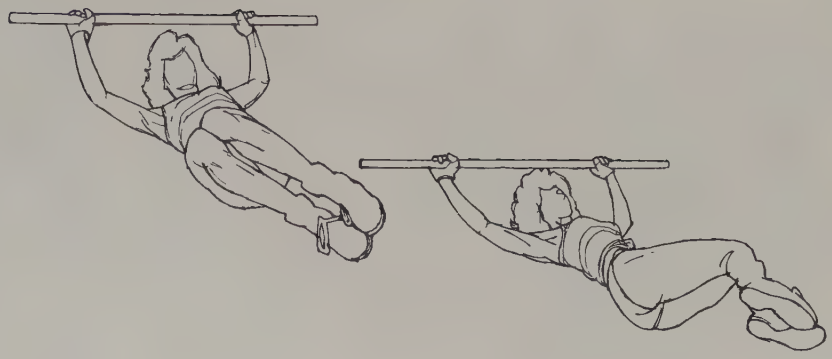
- *Lie on floor with hands under buttocks, palms down, legs extended.*
- *Bend knees, pulling upper thighs into midsection.*
- *Return to starting position.*
- *Concentrate on lower abdominals.*
- *Inhale up, exhale down.*
- *To make harder, hold light dumbbell between feet.*

A-7

Hip Roll

Obliques

- *Lie on your back.*
- *Hold an object behind your head for support or place hands under buttocks, palms down.*
- *Bend knees, feet firmly on floor.*
- *Lower legs to right side until upper thigh touches floor.*
- *Return to starting position, then repeat to left side.*
- *Do all bending at waist.*
- *Do not let shoulders come off floor.*
- *Inhale to right, exhale to left.*

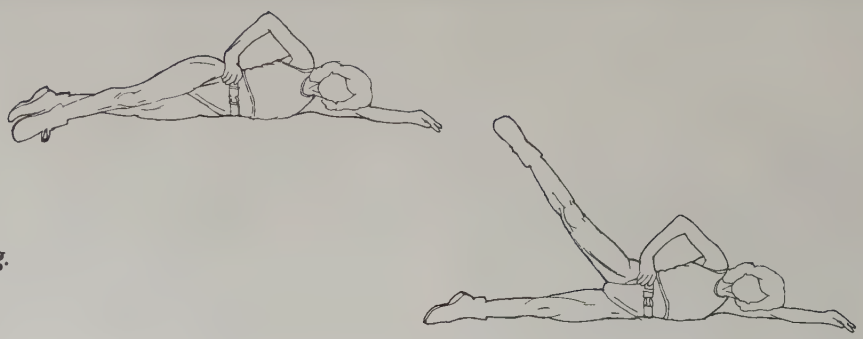


A-8

Lying Side Leg Raise

Hips

- *Lie on left side.*
- *Tilt body slightly forward.*
- *Raise right leg as far as possible.*
- *Keep leg straight, do not bend at waist.*
- *Return leg to starting position.*
- *Lie on right side and repeat with left leg.*
- *Inhale up, exhale down.*
- *Can also be done on standing incline bench.*

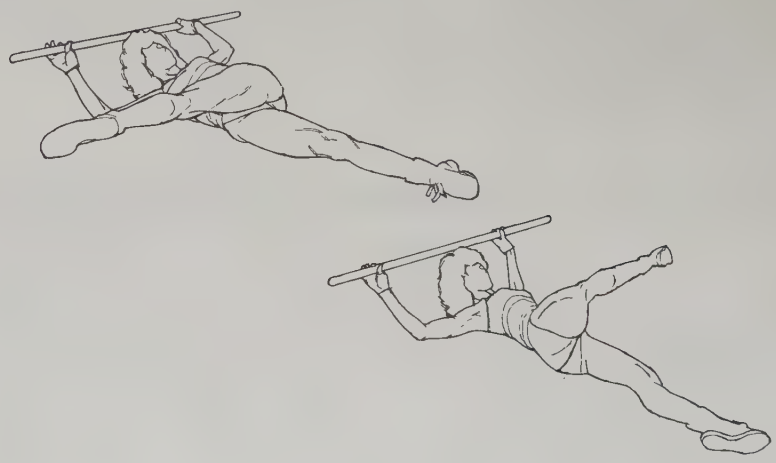


A-9

Lying Leg Crossover

Hips and Obliques

- *Lie on back.*
- *Hold an object behind head with a wider-than-shoulder grip.*
- *Keep shoulders on floor.*
- *Swing right leg over left leg, as far to the side as possible until it is nearly as high as your head.*
- *Keep leg close to floor.*
- *Return to starting position, then repeat movement with left leg.*
- *Keep knees locked, legs as straight as possible.*
- *Inhale as you swing leg, exhale as you lower it.*

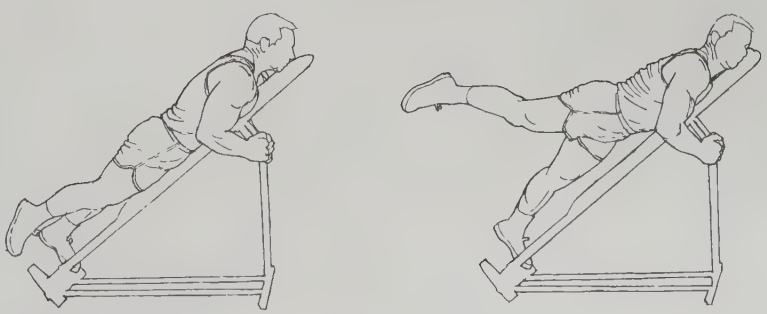


A-10

Incline Back-Kick

Hips

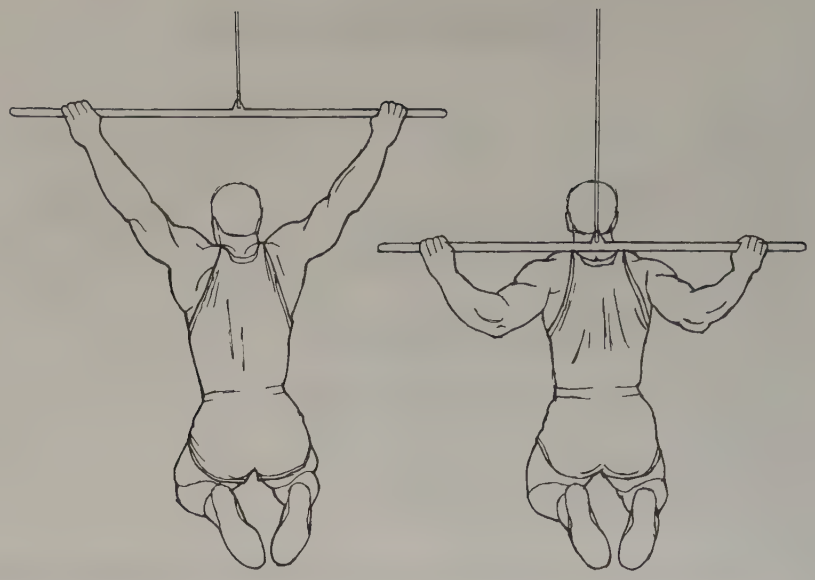
- *Lie face down on incline bench.*
- *Raise right leg straight back.*
- *Return leg to starting position.*
- *Keep leg as straight as possible.*
- *Repeat with left leg.*
- *Inhale up, exhale down.*
- *Can also be done lying on floor.*



BACK

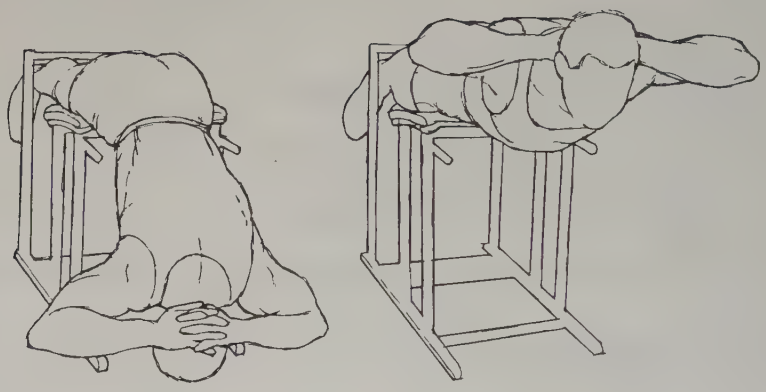
B-1
Wide-Grip Rear Lat Pull-Down
Upper Lats

- *Hold lat bar with hands about 36" apart.*
- *Kneel down far enough to support weights with arms extended overhead.*
- *Pull bar straight down until it touches back of neck just above shoulders.*
- *Return to starting position.*
- *Inhale down, exhale up.*
- *Can also be done with medium grip.*



B-2
Hyperextension
Lower Back

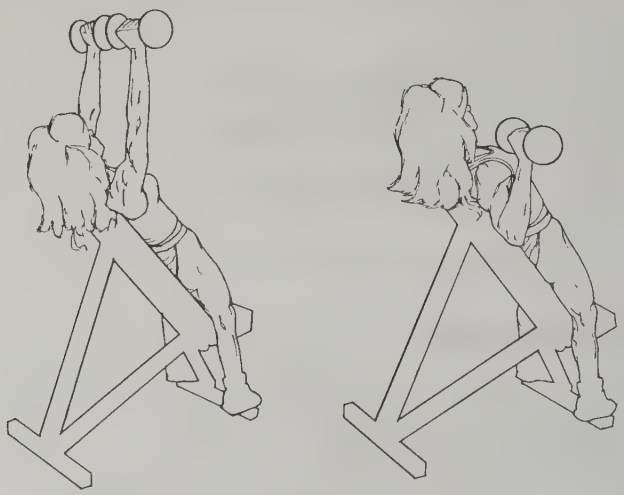
- *Extend upper body over end of high bench.*
- *Lock legs under support.*
- *End of bench should be at hips.*
- *Bend down at waist so upper body is vertical to floor.*
- *Place hands behind head.*
- *Raise torso straight up until slightly past parallel.*
- *Return to starting position.*
- *Inhale up, exhale down.*
- *Can also be done with weight behind neck to increase resistance.*



CHEST

C-1
Incline Lateral
Upper Pectorals

- *Lie on incline bench.*
- *Hold dumbbells together at arms' length above shoulders, palms forward.*
- *Slowly lower dumbbells to chest until 10" from each side of chest.*
- *Elbows in line with ears.*
- *Forearms slightly out of vertical position.*
- *Return to starting position using same path.*
- *Inhale down, exhale up.*

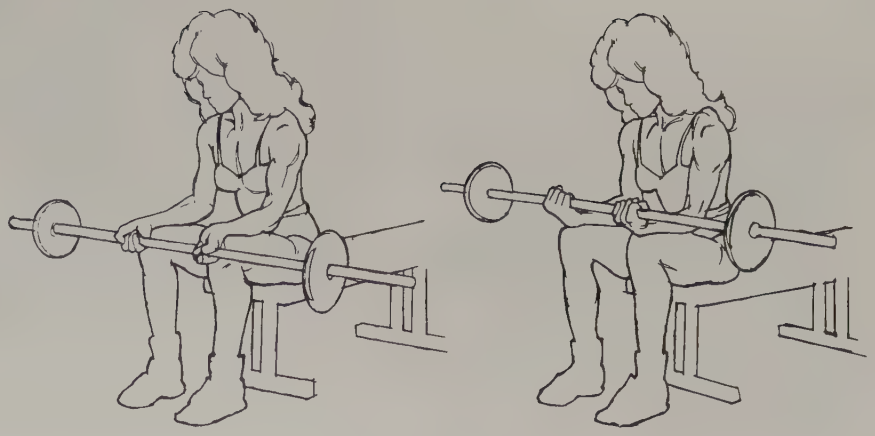


F-1

Seated Palms-Up Barbell Wrist Curl

Outside Forearms

- *Hold barbell with both hands, palms up, hands 16" apart.*
- *Sit at end of bench, feet on floor about 20" apart.*
- *Lean forward, place forearms on upper thighs.*
- *Place backs of wrists over knees.*
- *Lower bar as far as possible, keeping tight grip.*
- *Curl bar as high as possible.*
- *Do not let forearms raise up.*
- *Inhale up, exhale down.*

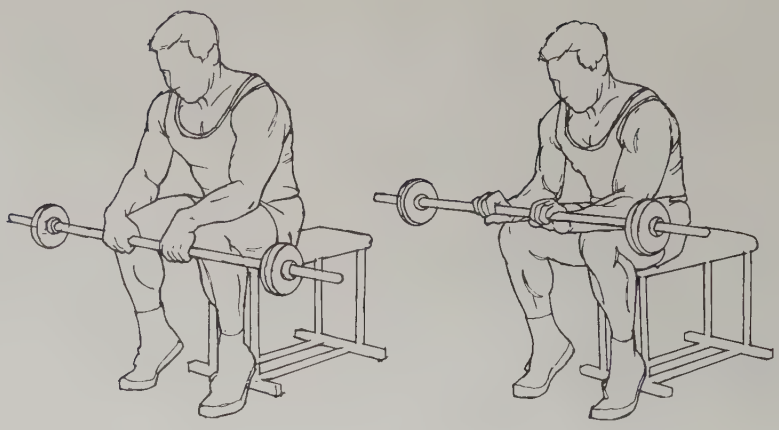


F-2

Seated Palms-Down Barbell Wrist Curl

Inside Forearms

- *Hold barbell with both hands, palms down, hands 16" apart.*
- *Sit at end of bench, feet on floor about 20" apart.*
- *Lean forward, place forearms on upper thighs.*
- *Place wrists over knees.*
- *Lower bar as far as possible, keeping tight grip.*
- *Curl bar as high as possible.*
- *Do not let forearms raise up.*
- *Inhale up, exhale down.*

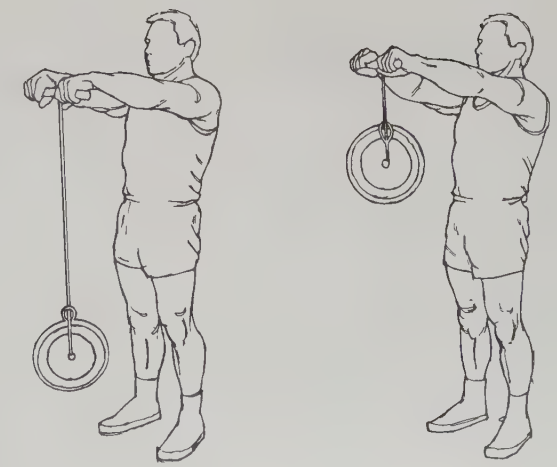


F-3

Standing Arms-Extended Wrist-Roller Wrist Curl

Outside Forearms

- *Place light weight on end of rope of wrist roller.*
- *Stand erect, back straight, head up.*
- *Hold wrist roller with both hands, palms down.*
- *Extend arms straight out.*
- *Roll weight up by curling right hand over and down, then left hand over and down.*
- *Keep arms parallel to floor.*
- *Continue curling right to left hand until weight touches bar.*
- *Lower weight to starting position by reversing movement.*

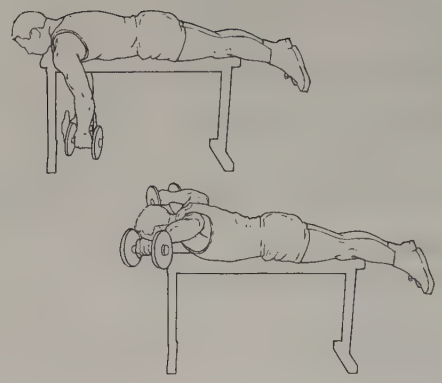


S-1

Lying Rear Deltoid Raise

Rear Deltoids

- *Lie face down on fairly tall flat bench.*
- *Hold dumbbells, palms facing, arms hanging down.*
- *Keep elbows locked, arms straight.*
- *Raise dumbbells in semicircular motion to shoulder height, in line with ears at top of lift.*
- *Lower to starting position using same path.*
- *Inhale up, exhale down.*

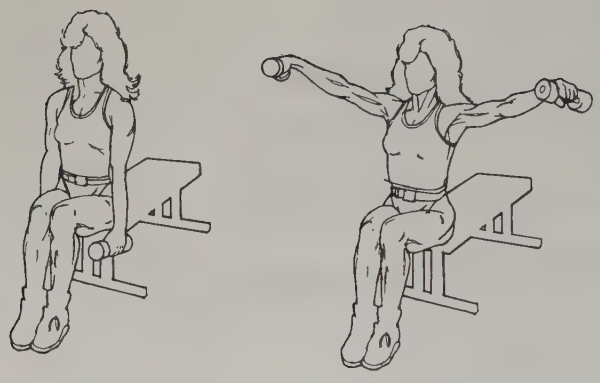


S-2

Seated Side Lateral Raise

Front and Outer Deltoids

- *Sit at end of bench, feet firmly on floor.*
- *Hold dumbbells, palms in, arms straight down at sides.*
- *Raise dumbbells in semicircular motion a little above shoulder height.*
- *Pause, then lower to starting position using same path.*
- *Keep arms straight.*
- *Inhale up, exhale down.*
- *Can also be done standing.*

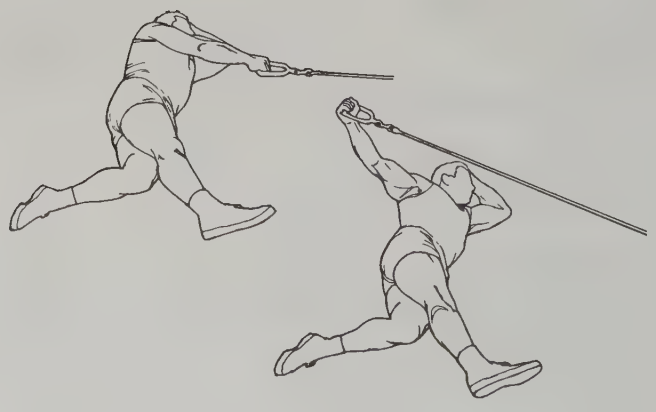


S-3

Lying Floor Low-Pulley Across Body Rear Deltoid Raise

Rear Deltoids

- *Lie on left side in front of wall pulley.*
- *Hold low handle with right hand.*
- *Lie far enough from pulley to have full range of motion.*
- *With right arm in front of you, in line with shoulders, raise arm in semicircular motion until vertical above right shoulder.*
- *Keep arm straight, in line with shoulder.*
- *Inhale up, exhale down.*
- *Reverse position and repeat with left arm.*

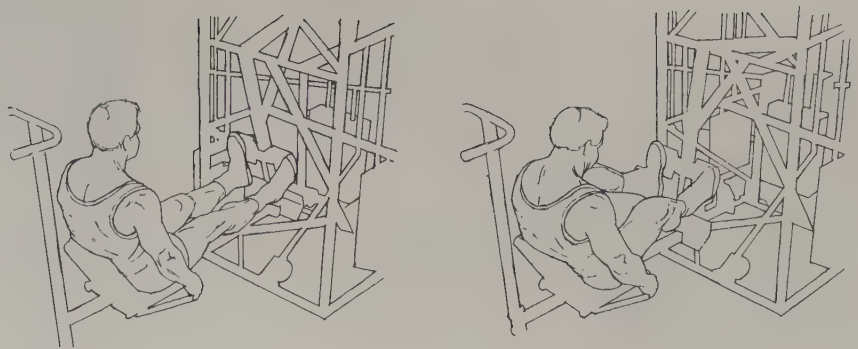


Th-1

Medium-Stance Top-Pad Leg Press on Universal Machine

Upper Thighs

- *Adjust seat so upper thighs are nearly vertical to floor in contracted position.*
- *Hold hand rails under buttocks.*
- *Place feet on top pads.*
- *Press out until thighs are straight, knees locked.*
- *Let weight stack down until it nearly touches remaining plates.*
- *Keep knees slightly out.*
- *Inhale down, exhale up.*

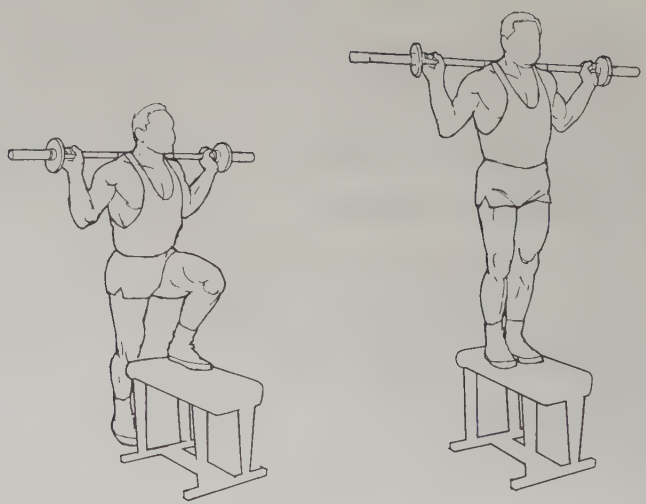


Th-2

Step-Ups With Barbell

Upper Thighs

- *Place barbell on shoulders.*
- *Step up with left leg onto flat bench.*
- *Step up with right leg.*
- *Step down with left leg first, then right leg.*
- *Repeat, starting with right leg.*
- *Inhale down, exhale up.*



Th-3

Freehand Side Lunge

Inner Thighs and Hamstrings

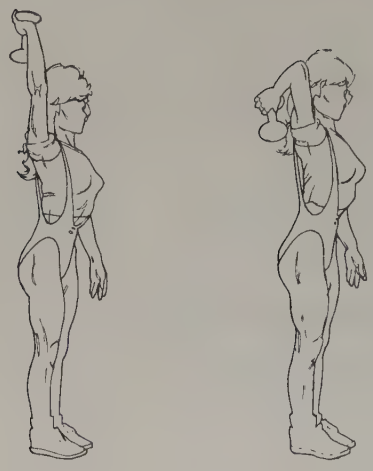
- *Stand erect with hands on hips.*
- *Back straight, head up, feet close together.*
- *Step to side as far as possible with left leg until upper thigh is almost parallel to floor.*
- *Keep right leg as straight as possible.*
- *Step back to starting position.*
- *Inhale out, exhale back.*
- *Repeat with right leg.*

Tr-1

Standing One-Arm Dumbbell Triceps Curl

Triceps

- *Hold dumbbell in right hand and raise overhead to arm's length.*
- *Stand erect, head up, feet 16" apart.*
- *Keep upper arm close to head.*
- *Lower dumbbell in semicircular motion behind head until forearm touches biceps.*
- *Return to starting position.*
- *Inhale down, exhale up.*
- *Repeat with left arm.*
- *Can also be done seated.*

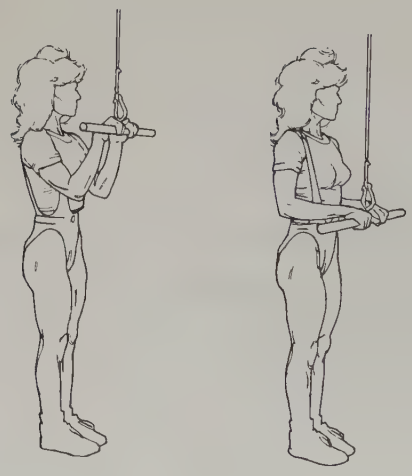


Tr-2

Standing Close-Grip Triceps Press-Down on Lat Machine

Outer Triceps

- *Stand erect, head up, feet 16" apart, in front of machine.*
- *Hold bar with hands 8" apart, palms down.*
- *Bring upper arms to sides and keep them there.*
- *Start with forearms and biceps touching.*
- *Press bar down in semicircular motion to arms' length.*
- *Return to starting position.*
- *Inhale down, exhale up.*
- *Can also be done with medium or reverse grip.*

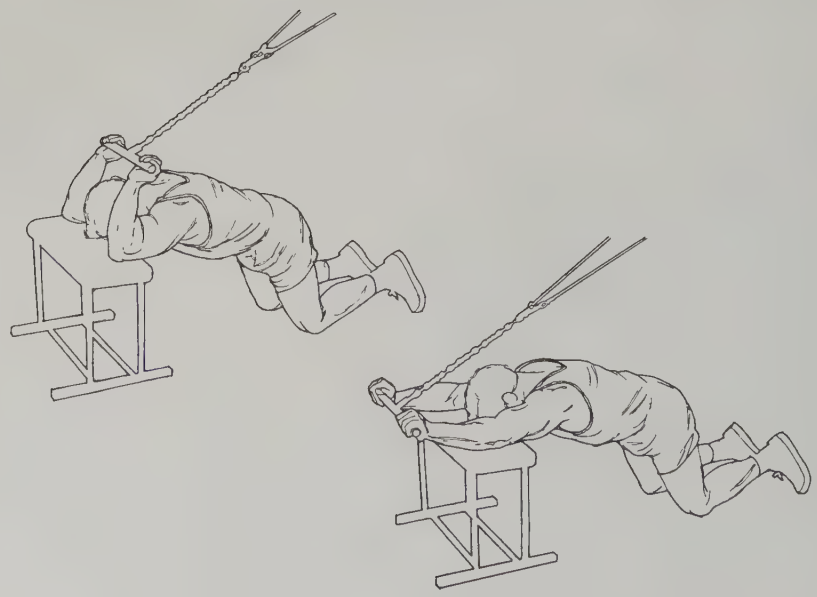


Tr-3

Kneeling Head-Supported Close-Grip Triceps Extension on High Pulley

Triceps

- *Place bench sideways in front of high pulley.*
- *Hold bar with hands 6" apart, palms down.*
- *Face away from machine and kneel.*
- *Place head and front of upper arms on bench.*
- *Keep upper arms close to head.*
- *Start with forearms and biceps touching.*
- *Press cable out in semicircular motion until elbows are locked, arms parallel to floor.*
- *Return cable to starting position.*
- *Inhale out, exhale back.*
- *Can also be done with medium grip.*

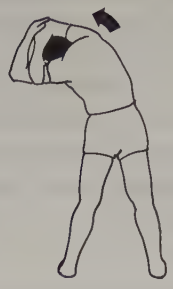


Appendix 17-B

GOLF FLEXIBILITY EXERCISES

Do stretching gently and hold the position, *no bouncing, abrupt forcing or jerking.* Warm-up before stretching with some light jogging-in-place or jumping jacks.

1. *Lace fingers and extend hands upwards; 15 seconds. (Hands, fingers and shoulders).*



2. *Hands and arms behind head, 15 seconds each side.*

3. *With golf club or towel stretch back; 15 seconds. (Shoulders)*

4. *Feet flat on the floor, twist and place hands on the wall; 30 seconds each side. (Hips and obliques)*

5. *Keep the heel of the rear leg on the floor; 30 seconds each leg. (Lower leg)*

6. *Grab foot with opposing hand, pull toward buttocks till stretch is felt and hold; 15 seconds each leg. (Quadriceps)*

7. *Put elbow behind the head and gently pull toward center of back until stretch is felt and hold; 15 seconds each arm. (Shoulders)*

8. *Form a tight ball position and rock back and forth; about 8 to 10 times. (Back)*

9. *Keeping shoulders flat, swing knee to floor till stretch is felt and hold; 15 seconds each leg. (Iliotibial band)*

10. *Sitting upright, place feet together and push gently down on knees until stretch is felt and hold; 30 seconds. (Groin)*

11. *Grab ankle or shin and hold; 30 seconds each leg. (Hamstrings)*

12. *Sit backward toward heels till stretch is felt and hold; 20 seconds (Wrists)*

Appendix 17-C

TEN KEYS TO EXERCISE HABIT FORMATION

It is not to difficult to get people *started* exercising, keeping them going is another matter...Why?...That's a hard question to answer, for invariably, the "exercise dropout" admits to the many benefits he experienced when he was exercising. But for various reasons, some valid and some weak, these people begin to be absent from their activity sessions. The absences become more frequent, then they quit altogether. When this happens "the dropout" usually feels a sense of guilt and failure. Hey, we're all going to fail! Make no mistake about it, no one, NO ONE, accomplishes the task of getting to every exercise session he has planned to make. We all will fail sometimes, *temporarily* — the key is not to fail *permanently.* If you have missed or dropped out for a time, then drop back in. It may be a little discouraging at first to see the ground you have lost but the rewards will come quickly... Now to some keys to exercise habit formation.

Key 1 **DESIRE**

The single most important key to any undertaking is the intensity of the desire to take part in that activity, or to achieve the rewards that the activity will produce. Whatever it is, you must want it badly enough to give it some priority and to commit time and effort to complete the activity successfully.

Key 2 **PROGRESSIVE GOAL SETTING**

Having desire to accomplish something without actually knowing where it is you are going leads to aimless wasted effort. Know precisely what it is you are seeking, when you plan to achieve it and then set a goal to do just that. If the goal is far in the future, set intermediate goals to reach on the way. Every journey of a thousand miles begins with the first step.

Key 3 **MEASUREMENT**

There must be a way to measure whether or not you are progressing toward your goal successfully. Keeping records and charts before — during — and after activity is the way in which measurement can provide you with essential feedback to sustain your motivation.

Key 4 **ACTIVITY SELECTION**

Having decided what it is you want and when you plan to get it, then marshall whatever resources that are available to achieve your goal. If it is a better swing or longer shots, select those activities which best lead to that goal, the place, time, and facility you need to realize the successful experience of that activity, and acquire the equipment you need to help you continue over a long period of time. Choose something that is FUN if possible. Also try to steer away from anything that will become monotonous. A variety of activities by season may be necessary to avoid this pitfall (monotony) which is a motivation killer.

Key 5 **REGULARITY**

A moderate amount of activity over a long period of time (like five days per week) is far more desirable than a lot of activity all at once like on a weekend. Set a schedule that includes exercising or engaging in activity at a regular time each day. That is what a habit is, something done consistently on a regular basis.

Key 6 **FREQUENCY AND DURATION**

The benefits of activity are directly related to "how often" and "how long" as well as "how intense." As a rule, the greater effort you expend, the greater will be your physiological reward, as long as the stress is not so great as to harass or overwhelm you.

Key 7 PATIENCE

A person who has been in good physical condition does not lose it in a matter of days as a rule. More common is the "creeping up on you" syndrome which takes several years to take its toll. Though it may have taken years to lose your fitness you can regain it in a comparatively short period of time, like in several weeks or months. But don't be impatient and expect that state to return in a few days.

Key 8 PLATEAUING

The law of diminishing returns will eventually set in during fitness progression. As a person gets nearer a high state of physical fitness he will find the improvements over previous performances less noticeable. This leveling off or plateauing is to be expected and is the point (if at your goal) where you should institute a maintenance program to hold that level.

Key 9 PERSEVERANCE FROM INTERRUPTION

Try not to let schedule changes and other activities cause you to miss your workout. Have an alternate plan, rainy day or otherwise. If guests visit, include them. If you are travelling, take your hotel-motel workout routine. When sickness or emergency does interrupt, and it probably will, gradually work back to your regular routine, but don't expect to perform at your top level for a couple of weeks.

Key 10 CAUSE AND EFFECT

Nothing positive will happen to you in the fitness world to improve your golf unless you cause it to happen. For certain, we know this about fitness: You can't buy it, borrow it, or steal it, and once you have it you can't even store it. You must earn it, and you will, if you make it become a habit, a part of your everyday life.

Appendix 17-D

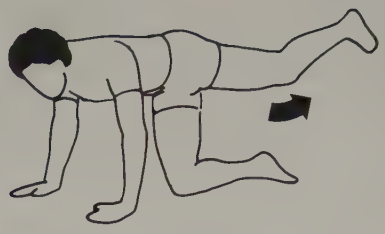
EXERCISES FOR THE LOWER BACK

1. Partial Curl Up

Tilt pelvis to flatten back. Grasp hands behind head supporting neck. Raise upper body until shoulder blades clear the floor. Hold 5 seconds. Gradually increase repetitions.

2. Upper Body Extension With Chin Tuck

Place a pillow under your abdomen. Clasp hands behind you. First pull shoulders back pinching shoulder blades. Secondly, raise head and shoulders off the table with chin tucked during exercise. Hold 5 seconds, relax. Gradually increase repetitions.

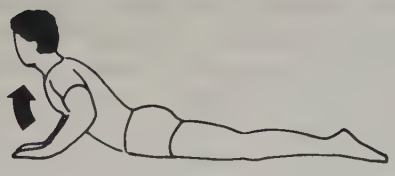


3. Four Point Hip Extension

Keep neck in a neutral position as you raise one leg up behind you. Knee is kept slightly flexed. Do not arch your back. Hold 5 seconds. Relax. Gradually increase repetitions.

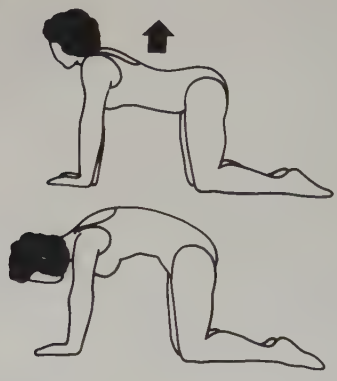
4. Four Point Upper Back Extension

Keep neck in a neutral position as you raise one arm out in front of you. Keep back flat as you do so. Hold for 5 seconds. Relax. Gradually increase repetitions.



5. Prone Push Up

Push up with your arms lifting upper body. Keep hips in contact with the floor. Gradually increase repetitions.



6. Mad Cat

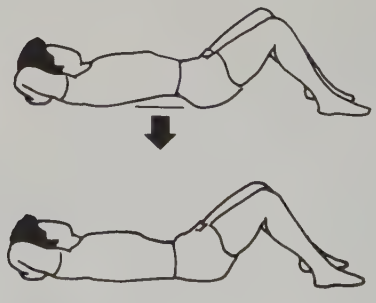
Hands directly under shoulders, knees under hips. Tuck chin and tighten your abdominals to arch your back. Hold for 5 seconds. Relax. Gradually increase repetitions.

7. Double Knee To Chest

Pull both knees up to chest to feel a comfortable stretch in low back and buttocks. Gradually increase repetitions.

8. Single Knee To Chest

Pull one knee up to chest to feel a comfortable stretch in low back and buttocks. Do the same with the opposite knee. Gradually increase repetitions.



9. Pelvic Tilt

Flatten your back by tightening the muscles of your stomach and buttocks. Gradually increase repetitions.

Appendix 18-A

STANDARD CLUB SPECIFICATIONS

from CPGA Teaching Manual, Chapter 2

Standard Wood Specifications

#	Lengths (inches)	Lofts (degrees)	Lies (degrees)	H.W. (grams)
1	43	11	55	203.5
3	42	16	57	213.5
4	41.5	19	58	218.5

Standard Iron Specifications

#	Lengths (inches)	Lofts (degrees)	Lies (degrees)	H.W. (grams)
2	39	21	59	242
3	38.5	25	60	249
4	38	29	61	256
5	37.5	33	62	263
6	37	37	63	270
7	36.5	41	64	277
8	36	45	65	284
9	35.5	49	66	291
P	35	53	67	298
S	35	57	67	305

* H.W. = Head Weights.

Appendix 18-B

YOUR GOLF BALL

by: Frank Hannigan*

For the minority who are prepared to swallow the truth, an understanding of the five standards applied to golf balls is essential:

1. Weight — The ball can't be heavier than 1.62 ounces. A ball a little heavier would probably travel a little longer.

2. Size — The ball can't be smaller than 1.68 inches in diameter. A smaller ball might be advantageous — especially when played into the wind. The test used in the USGA lab calls for balls to be tested at 75 degrees Fahrenheit after preparation in an incubator. It's such a sensitive test that a five-degree drop in temperature can make the difference between pass and fail because the ball contracts as it cools.

3. Initial Velocity — The standard is expressed as 250 feet per second, with a 2% tolerance, on the USGA apparatus, which features a metal flywheel as a striker. The tolerance is a scientific message saying that the device might fluctuate by as much as five feet per second. Manufacturers are confident that the performance is much better than the 2% tolerance indicates. Many tend to build right up to 255 feet per second — the standard plus the tolerance. Occasionally a brand will fall over the line — ever so slightly — and is stricken from the USGA list.

4. Spherical Symmetry — This test was introduced in 1983 following development of a ball with an asymmetrical dimpling arrangement advertised as being a preventer of extreme hooks and slices. A symmetrical ball will do what it's supposed to do — swerve off line when struck improperly. It was on this principle and to introduce the symmetry standard that the USGA prevailed.

5. Overall Distance — Introduced in 1976, this vital test is performed by robot — the celebrated Iron Byron — which hits balls into a fairway outside the USGA Research and Test Center. Iron Byron used a conventional wooden driver with a loft angle of 11 degrees. At the instant of impact his club is travelling 109 miles per hour, about the speed of a long-hitting touring pro. A calibration ball is launched at nine degrees. The clubhead is laminated, not persimmon, because it simply doesn't matter — in terms of distance. About every 4,000 hits a shaft snaps, which makes for a lively few seconds in the Test Center as the clubhead ricochets off a wall or ceiling.

   For a ball to flunk the overall distance test, it would have to travel 296.8 yards — carry plus roll — under controlled conditions. This is stated in the specifications as a maximum of 280 yards plus a tolerance of 6%. When the Overall Distance Standard was established in 1976 it was with the understanding that no ball then in existence or in the pipeline of research would fail. Thus, manufacturers were given a kind of innovative tolerance amounting to an improvement on the order of 4%. That gap has just about been closed.

   In other words, the USGA now takes the position that golf balls, when struck by a mechanical golfer designed to replicate what happens in real life, are never to go more than a few yards longer than today's balls. It's a shame the USGA couldn't have said that 30 or 50 years ago, but it's useful to be able to say it today.

   Note that there is a modifier in the USGA's level of confidence. It applies to drivers. A variety of factors, including dimpling configuration and weight distribution, causes balls to perform differently at different launch angles.

*Adapted from 1987 U.S. Open Program.

Appendix 19-A

GOLF: THE 25% THEORY*

Think of GOLF as being divided into FOUR primary areas:

I. BALL STRIKING — 25%
   - A. Area Where Golf Teachers Focus
   - B. Players Think Most Improvement Takes Place Here
   - C. Yet — It Is Only 25% Of The Game
     1. More important factor for beginners and intermediates.
     2. Less important factor for accomplished players.

II. SHORT GAME — 25% / Chipping, Pitching and Putting
   - A. Area Where Most Golfers Can Lower Their Scores *First.*
   - B. Difficult Area To Teach
     1. Tends to be boring.
     2. Golfers do not understand relationship to scoring.

III. MENTAL SIDE — 25% / Deal With The Emotions
   - A. How Does Player's Game Hold Up Under Pressure?
   - B. How Good A Competitor Is The Player? (Heart?)
   - C. How Much Desire Does Player Have? (Motivation?)
   - D. This Area Not Often Taught By Teachers / Sports Psychology

IV. MANAGEMENT — 25%
   - A. Playing The Game / Non-Mechanics
   - B. Maximizing Individual Talents
     Minimizing Individual Weaknesses
   - C. Playing Smart Golf
   - D. Understanding Limitations

*Material Provided by PGA Member, Jim McLean.

Appendix 19-B

CHARACTERISTICS OF MENTALLY TOUGH COMPETITORS*

by Dr. Jim Loehr

The world's greatest athletes give testimony to the reality of mental toughness every time they perform. All the great artists of sports have exemplified this special kind of inner strength, a strength that goes well beyond the limits of their natural talent and skill. It is the thin line which separates the few who make it from the thousands who don't. The deciding factor is always the same: your INNER STRENGTH makes the ultimate difference (all of these skills can be learned).

Self-Motivated And Self-Directed

He doesn't need to be pushed, shoved, or forced from the outside. His direction comes from within. He's involved because he wants to be, because it's his thing, not somebody else's.

Positive But Realistic

He's not a complainer, a criticizer, or a faultfinder. He's a builder, not a destroyer. His trademark is a blend of realism and optimism. His eye is always fixed on success, on what can happen, and on what is possible — not on their opposites.

In Control Of His Emotions

Every player or competitor understands all too well the unfortunate performance consequences of poor emotional control. Bad refereeing, stupid mistakes, obnoxious opponents, poor playing conditions, etc., represent powerful triggers of negative emotion. Anger, frustration, and fear must be controlled, or they most certainly will control you. The tough competitor has tamed the lion inside.

Calm And Relaxed Under Fire

He doesn't avoid pressure; he's challenged by it. He's at his best when the pressure is on and the odds are against him. Being put to the test is not a threat. It's another opportunity to explore the outer limits of his potential.

Highly Energetic And Ready for Action

He is capable of getting himself pumped up and energized for playing his best, no matter how he feels or how bad or meaningless the situation. He is his own igniter and can, in spite of fatigue, overcome personal problems, or bad luck.

Determined

His sheer force of will to succeed in what he has started is beyond comprehension for those who do not share the same vision. He is relentless in his pursuit of his goals. Setbacks are taken in stride as he inches his way further forward.

Mentally Alert And Focused

He is capable of long and intensive periods of total concentration. He is capable of tuning in what's important and tuning out what's not, whether there is no pressure or great pressure. In short, he has attentional control.

Doggedly Self-Confident

He displays a nearly unshatterable sense of confidence and belief in himself and in his ability to perform well. He rarely falls victim to his own or others' self-defeating thoughts and ideas. As a consequence, he is not easily intimidated. On the contrary, because of his confident appearance, he often becomes the intimidator.

Fully Responsible

He takes full responsibility for his own actions. There are no excuses. He either did or he didn't. Ultimately, everything begins and ends with him, and he is comfortable with that. He is fully aware that his destiny as an athlete is in his own hands. His future is his own.

*From: *Mental Toughness Training for Sports — Achieving Athletic Excellence,* by Dr. James Loehr: Stephen Green Press, Lexington, MA, 1986.

Appendix 19-C

A FORMULA FOR SUCCESS*

by Dr. James Loehr

The following four-step formula evolved from interviews and discussions with top performing athletes conducted over a period of nearly ten years.

Step 1: Self-discipline. Everything worthwhile begins at this level. It simply means doing whatever you have to do and making whatever sacrifices are necessary to get the job done the best you know how. It's hard work; it's giving up things you like in order to achieve a higher goal.

Step 2: Self-control. Self-discipline leads directly to self-control. As you discipline yourself, you experience steady increases in self-control — control of what you do, what you think, and how you react. Without self-control, being the best you can be as an athlete is nothing more than a fantasy.

Step 3: Self-confidence. Self-control leads directly to self-confidence. What tracks are to a train, self-confidence is to the athlete — without it, he can go nowhere. Self-confidence, that unshatterable belief in yourself, comes from knowing that you are in control.

Step 4: Self-realization. Self-realization is simply becoming the best you can be, the manifestation of your talent and skill as an athlete. It is the fulfillment and the ecstasy of sport. Self-realization follows directly from self-confidence. Once you believe in yourself and feel good about yourself, you are opening doors to your fullest potential.

*From: *Mental Toughness Training for Sports — Achieving Athletic Excellence,* by Dr. James Loehr: Stephen Green Press, Lexington, MA, 1986.

Appendix 19-D

STRATEGIES FOR GETTING YOUR GAME UNDER CONTROL*

by Chuck Cook

Rule One — Do Not Try To Do What You Cannot Do

You see beginning players trying to use clubs they can't use, intermediate players trying to play shots they can't hit and advanced players playing to targets that are totally unreasonable.

For instance, in research we've conducted, we've found that in order to hit a medium-sized green half the time from a perfect lie from 150 yards out, your handicap must be less than 10. Yet, too many club players play shots from this far out (or farther) without giving any regard to the consequences of missing the green — what kind of trouble they might be in and how difficult the recovery shot might be.

In other testing, we've found that unless you can create clubhead speed of at least 85 miles per hour, you can hit a three-wood farther in the air than a driver. Yet most players feel a compulsion to hit a driver whenever possible.

For advanced players, we've found that it's almost as difficult to make a putt just outside of 12 feet as it is to make one of almost 40 feet. Therefore, if you are an advanced player, check yourself to find out how many putts you have inside 12 feet. You should not expect to hole a lot of putts if you don't have a lot of chances inside that distance. We often hear good players say, "I'm hitting a lot of greens, but I can't putt." Quite often the problem is not with the putting. As Ben Hogan once said, "Hit it closer."

At the Academy, we have established general guidelines that say a beginner is a player whose handicap is higher than 24, an intermediate player is 12 to 24 and an advanced player is one with a handicap under 12. Of course, there are individual ability levels within those ranges.

Beginning players (handicap over 24) should apply Rule One by learning to hit a driving club (normally a five-wood) and a playing club (normally a five-iron) and learning a short-game system (usually involving a seven-iron, sand wedge and putter). As you advance, you can add clubs to all three areas. However, advancement is based on the ability to hit more difficult clubs on the range before you take them to the course. In other words, make your clubs earn their way to the course.

Intermediate players (handicap 12-24) should learn one basic shot, then use it all the way around the course. Don't try any fancy stuff — hooks and slices, high and low shots. Just become consistent with one swing and one shot. As your skills improve, you can add shots (proven in practice) to your inventory.

Advanced players (handicap 12 & under) must learn the fundamentals of shotmaking, the ability to hit shots of different shapes and trajectories, the knowledge that will let them play from all situations. My system for them then becomes, "Practice the shots you don't like and play with the shots you do like."

Play to Your Strengths

In keeping with Rule One, play to your strengths whenever you can. If you can't, then be judicious about pitting yourself against the hole's strengths. The order of priorities are:

1. Player's strength versus hole's weakness

   As you plan your round, look for the holes where you should be most aggressive. For instance, beginning players should look for holes (and/or courses) that are relatively trouble-free with forced carries. Intermediate players should look for holes (and/or courses) that have big target areas with several options for playing the hole. Advanced players should look for holes (and/or courses) that favor their "natural" shots.

2. Player's strength versus hole's strength

   Whenever possible, play with your natural ball flight. Try to fit your shot to the hole. If you can't do that, these holes (and/or courses) should be approached with caution and should be played for your par (with your handicap).

3. Player's weakness versus hole's weakness

   There are times when a player has to play away from what is most comfortable for him. (And that's really what golf is all about.) For instance, a beginner has to carry a pond, or an advanced player has to play away from his natural shot or aim at trouble. Playing away from your natural shot is better than aiming at trouble. When encountering this situation, you should be looking for the best place to miss the shot. The beginning player trying to carry water might look for the shortest carry. The intermediate player might look to avoid bunkers or the advanced player might look to the long side of the green.

4. Player's weakness versus hole's strength

   This is a situation to be avoided...always. It almost always invites disaster. There is no reason ever to encounter this matchup.

Rule Two — Do Not Aim Where A Straight Shot Will Hurt You

By testing, we've found that substantially more penalty shots are incurred from poor starting direction than from curve, by a ratio of almost 12 to 1. (For our testing, we assumed that a 10-yard curve had to be allowed. Therefore, any ball hit into a penalty situation with more curve than that was attributed to curve. With any less curve than that, the problem was starting direction.) Thus, aiming at or near trouble is virtually assuring that you will get there.

If you are a beginning player, then play to a spot where you can putt it. Most beginning players have an abnormal amount of mishits (tops, fats, toed shots, etc.) that will leave the ball on the ground. Therefore, playing toward "run ways" of the hole is the way to avoid disaster.

Intermediate players should use the "scattergun" approach, assuming that most of them play with shots that scatter as opposed to shots that hit the target with rifle-like precision. Pick the biggest target for each shot and shade it to the side away from the most trouble.

For advanced players, the task is simple. Aim away from trouble and curve the ball toward trouble.

Strategies To Fit The Shots

There are too many specific strategies for each course and for each hole to cover here. But following are my general recommendations for shots you will encounter:

For the tee shot — Your strategy for this important shot is to be less aggressive off the tee than for the other shots. Your rule of thumb should be that the closer to the hole you are, the more aggressive you should be. On the tee shot, the objective is to put the ball in position to use the easier shots. We have our players test themselves to identify the longest club they can hit and reasonably expect to hit the fairway half the time. For most players, this is rarely more than a three-wood.

For the advancement shot — An advancement shot is one that cannot reach the green after the tee shot. The strategy here is to make your next shot as easy as possible. So many players will use the longest wood in the bag without any regard for how hard the club is to hit or what will happen if it is not hit well. We test players to determine the longest club they can hit from the fairway onto the fairway at least half the time. For most players, this is rarely more than a four- or five-wood.

For the target shot — A target shot is one with which you can expect to hit the green. The key word here is expect. Everyone has a different zone or distance from which that occurs. A beginning player's target zone might be 50 yards from the green and in. The zone for most intermediate players extends only to about 100-125 yards, and an advanced player's target zone rarely exceeds 150-175 yards from the green. What that means is that from whatever distance you can expect to hit the green at least half the time, you are qualified to play a target shot rather than another advancement shot. That qualification zone is increased by either of two factors — improved target play or an accomplished short game. If you have a good short game, you can attempt more target shots from your given distance and beyond. Just be honest with yourself in making this assessment.

For the partial shots — These are all the less-than-full shots around the green, including putts, chips, pitches and bunker shots. Your priorities on shots from off the green should be, in order, on first, close second, hole out third. On the green, the closer to the hole you are, the more aggressive you should be, while the farther away you are, the more cautious you should be. This doesn't necessarily mean you should "charge" the short putts and "lag" the long putts, rather, you should establish a mental expectancy of success on short putts and a judgmental satisfaction on long putts laid close enough to two-putt. Too often, players react in the opposite manner — they are timid on short putts and too bold on long putts.

For the trouble shots — These are shots that crop up when you have placed your ball where you don't want it. The philosophy here is, "Don't follow a bad shot with a bad decision." In other words, first put the ball back in play, gambling only when you are reasonably sure of success and the gamble will save at least half a shot. If you are satisfied that the shot you are about to attempt can net you a score of four and not worse than a five, go for it. If a miss will cost you a six or worse, get the ball into play and proceed from there.

To achieve your best results, you should always follow the same procedure:

Plan your round — Decide which holes best suit your game and make a mental note to be aggressive on those holes, knowing that your normal tendencies will be in your favor. Also note which holes do not suit your game and remind yourself to proceed with caution there. Visualize and plan where to aim on all tee shots. Most of you have done this through trial and error, because you play the same course all the time. But if you are playing a course that is not familiar to you, here are a couple of thoughts that will help. First, identify the trouble, which should be obvious enough if you take the time to look. Second, locate the yardage markers so you have a feel for the distance to the green on each hole.

Warm up — When possible, you should schedule a warm-up session after arriving at the course. This session should satisfy three goals:

1. Loosen the muscles to enhance play and discourage injury.
2. Determine which swings are available that day.
3. Identify ball-flight tendencies that might change your planning;

Work your plan — While playing, stay with your plan, even though things don't work out exactly as you expected. If you have problems, don't try to "catch up" or push your game beyond your capabilities. The purpose of planning is to prepare for the best way to shoot a low score. Changing the plan under the heat of play can only mean taking a route that you decided beforehand was not the best way. If you do that, a couple of lost strokes can balloon to a dozen or more.

To get in the proper frame of mind, follow this procedure:

1. Select a swing

   No one feels the same from day to day for any number of reasons — health (sick, hung over), diet (had lots of salt the night before and hands feel puffy), recent history (haven't been playing a lot or have been playing a lot) and so forth. Consequently, to expect the body to achieve the same degree of efficiency every day is unrealistic. Some days your swing feels stiff and choppy. The nice thing about playing golf is that you have 14 "tools" to help you. It's just that a tool that fits the freewheeling, loose days needs to be changed for one that fits the tight, stiff days. However, your target can be reached both days. So, the first consideration is to select a swing that can be used effectively given the conditions of your body.

2. Select a target

   Once you have selected a swing, you'll know which targets are available. On days when your swing feels great, more options are available. On the days you feel out of sorts, your targets are limited.

3. Select a club

   The next step in the process is choosing the right tool. That's easy — Comfortable Swing + Comfortable Target = Proper Club Selection

4. Drive a familiar road

   The more often you do something, the more familiar is becomes. The more familiar you are with something, the more comfortable you feel. The first time you drive down a dark, winding road at night, your driving is cautious, filled with quick stops and starts.

   After taking the same road home for several nights, you can almost drive it subconsciously. Your learning to hit golf shots should follow the same pattern. Develop a consistent pre-shot approach and use it in practice and on the course.

   By doing this, you soon will be "driving that familiar road" to better shots and lower scores.

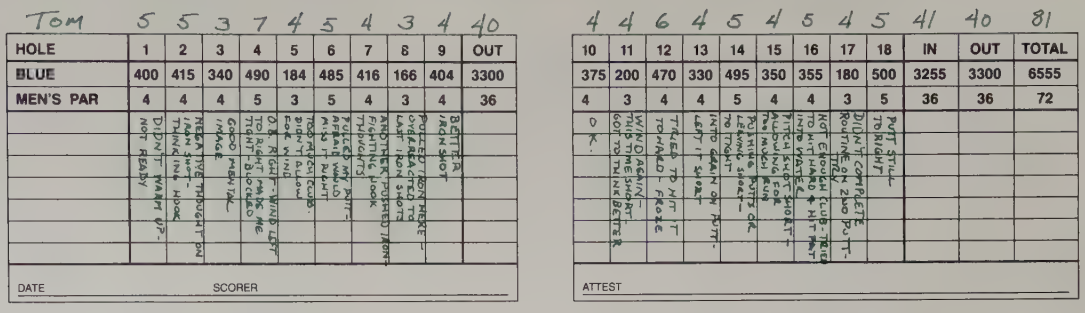
*Adapted from "Do Not Try What You Cannot Do," *The Golf Club Magazine.*

Appendix 19-E

THE WIREN-COOP CHARTING SYSTEM

The top card shows how a golfer might jot down mental or mechanical miscues during a round or immediately after. The bottom card shows a highly detailed profile of the same round, exclusively in terms of mechanics. Golfers need not keep track of every aspect of play, as is done here, to benefit from such an appraisal. Symbols for charting system are listed in the box at right. Putts are charted with the same symbols. The first putt is described in the upper left corner of the "putts" box. Total putts are recorded in the lower right corner. On one-putt holes, distance in feet is noted in the lower left corner. Thus, on the second hole, Tom bogeyed by driving straight, pushing his second shot short, just missing the green in three and talking two putts for a 5.

From: *The New Golf Mind,* by Gary Wiren and Dick Coop, Simon & Schuster, NY 1978.



Tom 5 5 3 7 4 5 4 3 4 40

HOLE	1	2	3	4	5	6	7	8	9	OUT
BLUE	400	415	340	490	184	485	416	166	404	3300
MEN'S PAR	4	4	4	5	3	5	4	3	4	36
	DIDN'T WARM UP. NOT READY	TENSE THINKING - HOOK	RELAXATIVE THOUGHT ON IMAGE	GOOD MENTAL TIGHT - BLOCKED	TOO RIGHT - MADE ME PUSH IT RIGHT	TOO TENSE - WIND LEFT PUSH IT RIGHT	FAILED MY BITE - AFRAID WOULD MISS IT RIGHT	PUSHED FIGHTING HOOK THOUGHTS	PULLED IRON NEXT TIME - REACTED TO LONG SHOT - RAN NEW SHOT INTO TROUBLE	BETTER IRON SHOT
DATE		SCORER								

4 4 6 4 5 4 5 4 5 41 40 81

10	11	12	13	14	15	16	17	18	IN	OUT	TOTAL
375	200	470	330	495	350	355	180	500	3255	3300	6555
4	3	4	4	5	4	4	3	5	36	36	72
O K.	WIND AGAIN - THIS TIME SHORT - GOT TO THINK BETTER	TALKED TO HIT IT TOWARD - FROZE	LEFT IT SHORT - INTO GRAIN ON PUTT.	TOO TIGHT - LEANING SHORT -	PULLED PUTT - TOO TIGHT	HIT MATCH SHOT - HOOKED INTO WATER	NOT ENOUGH CLUB - TRIED TO HIT HARD & HIT FAT	DIDN'T COMPLETE ROUTINE - TOO 2ND PUTT -	PUTT STILL TO RIGHT		
ATTEST											

HOLE	1	2	3	4	5	6	7	8	9	OUT
BLUE	400	415	340	490	184	485	416	166	404	3300
MEN'S PAR	4	4	4	5	3	5	4	3	4	36
TOM	5	5	3	7	4	5	4	3	4	40
DRIVE	|	|	/	(	↑	|	|	\	)	
2ND SHOT	\	↗	|	\		|	↗	↗	/	
3RD SHOT	/	T		T S		\	T			
PUTTS	/ 2	\ 2	7 1	/ 2	↑ / 3	\ 2	5 1	15 1	/ 2	

10	11	12	13	14	15	16	17	18	IN	OUT	TOTAL
375	200	470	330	495	350	355	180	500	3255	3300	6555
4	3	4	4	5	4	4	3	5	36	36	72
4	4	6	4	5	4	5	4	5	41	40	81
↗	T	RO	/	|	|	|	/	↗			
|	↑	|	|	/	↖	T W		T			
		/		\	T	/		/			
T 2	T 2	/ 2	T 2	/ 2	10 1	20 1	↗T 3	/ 2			

Symbols

| Straight shot	T Short
\ Pull	↑ Long
/ Push	s Sand
↖ Hook	w Water
↗ Slice	o Out-of-bounds

Appendix 19-F

STROKE-SAVER SYSTEM FOR COURSE MANAGEMENT

1. I will use enough club to comfortably get to the flag.
2. I will use a routine for every shot and play in pictures.
3. I will not leave a makeable putt short.
4. Into the wind, uphill to an elevated green, I will use a more straight-bladed club; with the opposite conditions, a more lofted club.
5. I will not hit a shot with a negative thought in my mind.
6. I will never swing with more effort than that needed to produce my E.S.S. (effective swing speed).

*From Five Star Golf School, by Dr. Gary Wiren.

Appendix 20-A

FIRST RULES OF GOLF — 1744

1. You must tee your ball within one club's length of hole.
2. Your tee must be on the ground.
3. You are not to change the ball you strike off the tee.
4. You are not to remove Stones, Bones or any Break Club, for sake of playing your ball, except upon the Fair Green and that only within a club's length of your ball.
5. If your Ball come among watter or any wattery filth, you are at liberty to take out your Ball and, bringing it behind the hazard and teeing it, you may play it with any club and allow your Adversary a Stroke, for so getting out your ball.
6. If your balls be found anywhere touching one another you are to lift the first ball, till you play the last.
7. At Holing, you are to play your Ball honestly for the Hole, and not play upon your Adversary's Ball, not lying in your way to the Hole.
8. If you should lose your Ball, by its being taken up, or any other way you are to go back to the Spot, where you struck last, and drop another Ball, and allow your adversary a stroke for the misfortune.
9. No man at Holing his Ball is to be allowed, to mark his way to the Hole with his club or anything else.
10. If a Ball be stopp'd by any person, Horse, Dog or anything else, the Ball so stopp'd must be played where it lyes.
11. If you draw your Club, in order to Strike and proceed so far in the Stroke, as to be bringing down your Club: If then your Club shall break, in any way, it is to be Accounted a Stroke.
12. He whose Ball lyes farthest from the Hole is obliged to play first.
13. Neither Trench, Ditch or Dyke, made for the presentation of the Links, nor the Scholar's Holes or the Soldier's Lines, Shall be accounted a Hazard. But the ball is to be taken out and tee'd and play'd with any iron club.

(No penalties for violations were contained in the 13 original rules. They were for match, not medal, play.)

Appendix 20-B

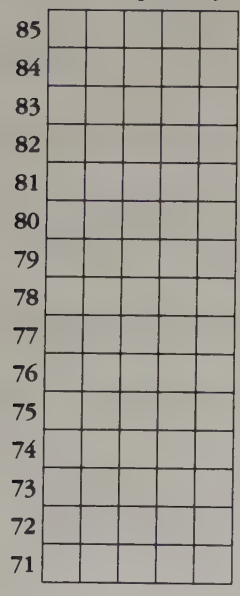
COMPARATIVE SCORE RECORD

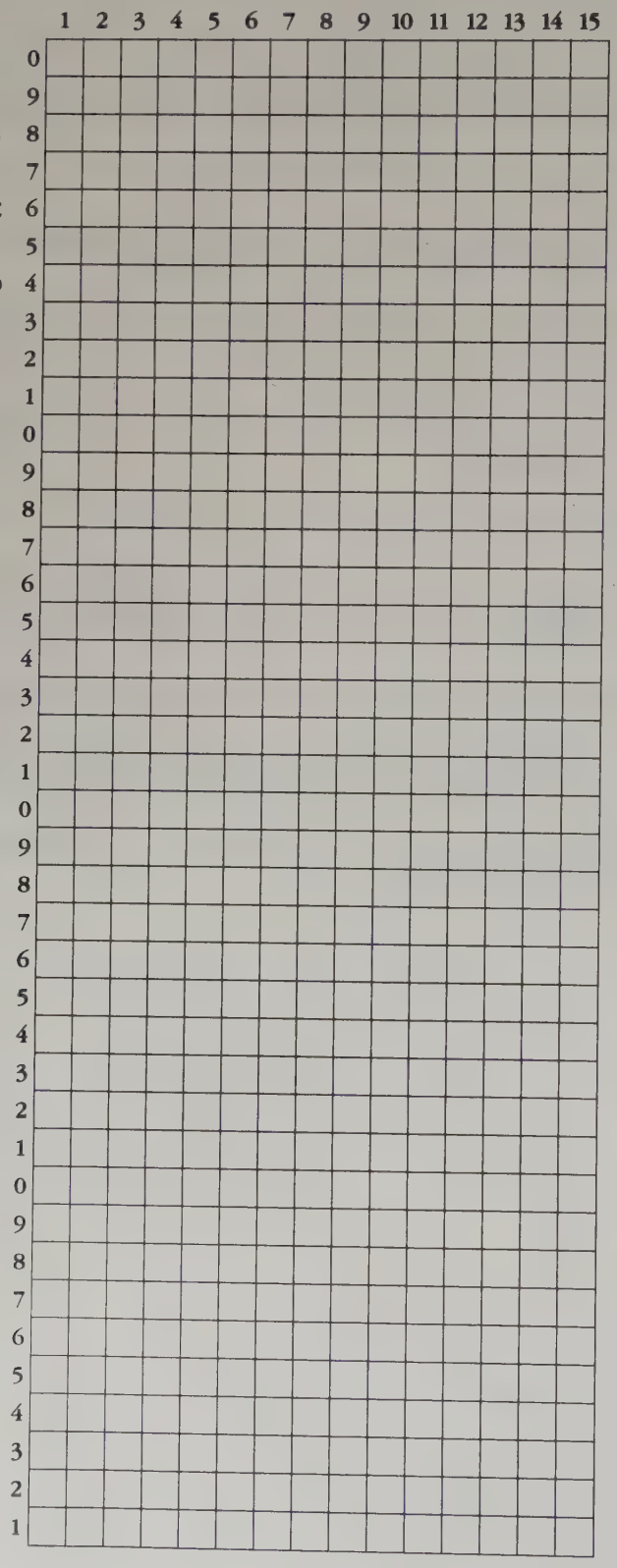
Here is a useful tool for the student who likes detail.

My home course rating is _____. My average score for the year at my home course was _____. For all courses _____.

Rounds #1-35

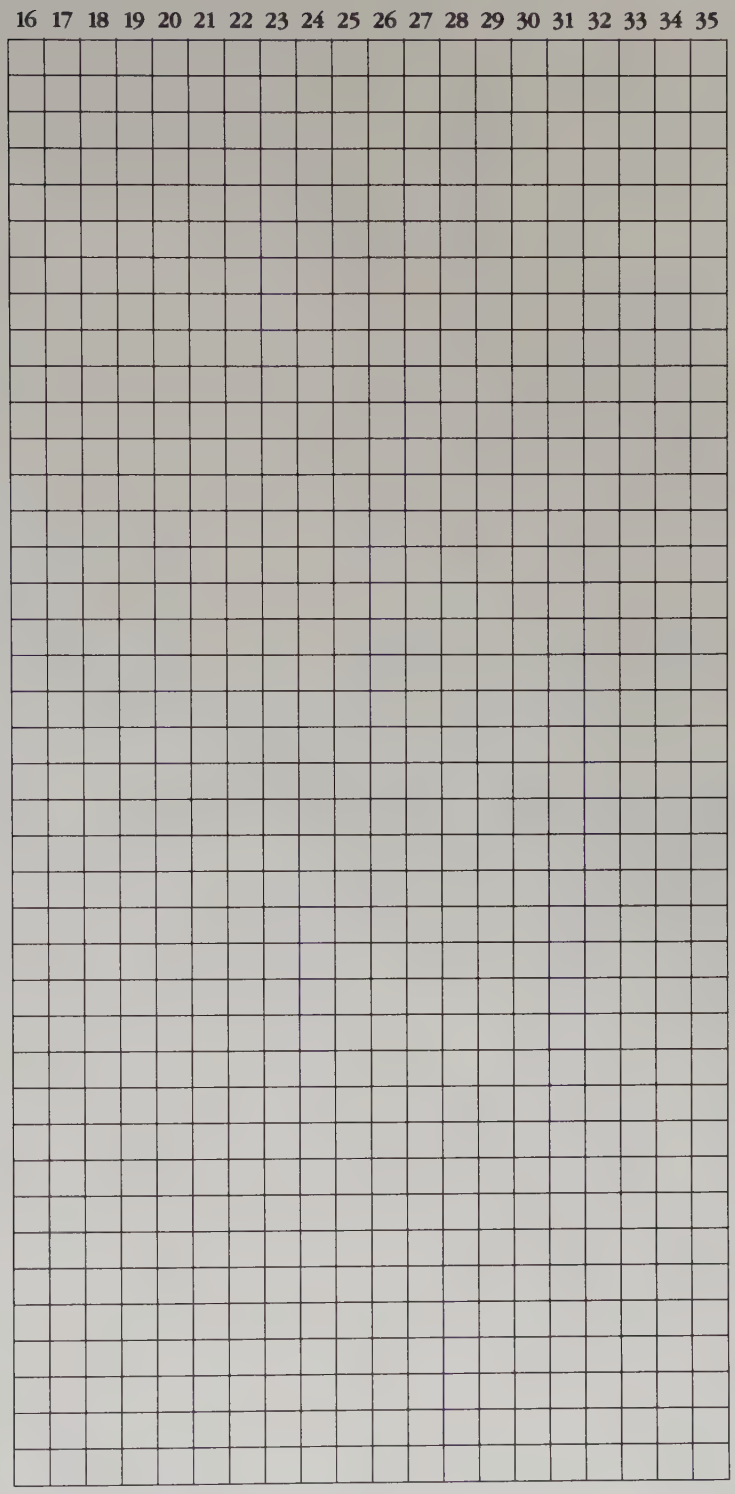
Example





Start with lowest possible personal round ending in 1, i.e., 91, 81, 71, 61. Fill in appropriate numbers up the scale.

Rounds #36-70 — Use different color.
If over 70 rounds, use third or fourth color if necessary.



Take this opportunity to plot your scores so you can have a visual picture of your progress. Place a dot recording your round on the appropriate score line and connect the dots to make a graph.

Put a circle around any score shot at a facility other than your home course, and write in the course rating.

For 9-hole rounds take number of strokes over par, double it, and add that to the 18-hole par and enter the figure.

Appendix 20-C

RINGER SCORE RECORD

A Ringer Score is your best gross figure* for each hole on the course, considering every round you shoot. It's an enjoyable statistic to keep — particularly if you play at one course over a long period of time.

One of the all-time great Ringer Scores was recorded by the late Freddie McLeod, 1908 U.S. Open Champion. Here is his Ringer over a period of 59 years at Columbia Country Club, Chevy Chase, MD, where he served as professional for that period of time.

Fred McLeod's Ringer Score

Hole	1	2	3	4	5	6	7	8	9	Out
Score	2	2	2	2	3	3	2	2	3	21
Yards	338	304	338	170	524	437	322	175	401	3009
Par	4	4	4	3	5	4	4	3	4	35

	10	11	12	13	14	15	16	17	18	In
Score	2	3	2	1	2	2	1	2	3	18
Yards	416	413	511	158	359	358	126	234	395	2970
Par	4	4	5	3	4	4	3	3	4	34

18 Hole Total 39
Par 69

May we suggest for more enjoyment that you keep an annual Ringer Score Record at your home and compare it from one year to the next, as well as an all-time best Ringer Score record. It will make golf more fun.

*A Net Ringer Score with your handicap may also be kept.

Appendix 20-D

GOLF IS FOR FUN

"Golf is a game and as such is meant to be enjoyed." That is the opening line of a little-known golf instruction book, but no truer words about this game have ever been spoken. To tell the truth, we all would like to play better. If we only have fun when we play well, we're going to enjoy golf about 10% of the time. We should be having a good time with golf all of the time and, it we're not, we should find out why and do something about it.

Why do you play golf?

- ☐ Enjoy it
- ☐ To get exercise
- ☐ The challenge
- ☐ Social contacts
- ☐ Business relations
- ☐ Being out-of-doors
- ☐ Competition
- ☐ Reduce stress & tension
- ☐ Be with spouse/family
- ☐ To make money

How could you enjoy it more?

1. Know basically why you play and see that your objective is met.
2. Have a realistic appraisal of the level of your game based on how much you've practiced, how you've been playing, the course and the competition.
3. Find some fun people to play with.
4. Learn to appreciate the surroundings, the people, and the game itself and how people react to it.
5. Read more about the game's history to help you appreciate what we have today.
6. Remember that no one has or will master the game. No matter how much you improve, the game will always humble you on occasion. Accept it, and remember — there's always a tomorrow for golfers.
7. Get a good teacher; set a goal; practice; and play better golf.
8. Try to improve, but after a bad day you may wish to use the philosophical approach.

"If the pleasure of golf is in striking a ball and seven a hole you do, I who had fourteen in all have had twice as much fun as you."

Van Tassel Sutphen

Appendix 20-E

U.S. OPEN WINNERS QUIZ

You can have fun with golf not only when playing it, but also when discussing it. Use the following clues to discover the name of a former U.S. Open Champion. Some are clues for the given name, some for the family name.

1. _____ Wine for three
2. _____ Hors d'oeuvres
3. _____ Protective accoutrement
4. _____ December 25th
5. _____ Poet and Admiral
6. _____ Card cheat
7. _____ "Et tu Brute"
8. _____ Sheriff's offspring
9. _____ scotch with a small "s"
10. _____ "Keep up with the _____ ."
11. _____ Kindergarten snacking delight
12. _____ Blue-yellow
13. _____ Admiral Byrd
14. _____ Personality trait
15. _____ Ghostly figure
16. _____ Lightning
17. _____ City official
18. _____ Median
19. _____ Size comparison
20. _____ "The conquering hero"
21. _____ "Nilly" - "Andy"
22. _____ Noisy bird
23. _____ Famous W.C. Fields endearment
24. _____ Talking mule
25. _____ Principle of physics
26. _____ A cigarette and competitor
27. _____ And recreation department
28. _____ Sleuth's sidekick
29. _____ Large timepiece
30. _____ Farm building
31. _____ They give you a sunburn
32. _____ Grain for bread

Adapted from original material by Dick Haskell, Massachusetts Golf Association.

USGA WOMEN'S OPEN WINNERS QUIZ

1. _____ Little Women
2. _____ Famous General (WWII)
3. _____ Arnold _____
4. _____ Alligator
5. _____ Cake mix (last name)
6. _____ Christmas decoration
7. _____ Waltzing Matilda
8. _____ Makes bread
9. _____ Christmas song
10. _____ Disney World character
11. _____ A Vanderbilt
12. _____ American flag
13. _____ Downed the Titantic
14. _____ Infant
15. _____ Chicago gangster

ANSWERS

U.S. Open Winners Quiz

1. Lee *Trevino*
2. Jerry *Pate*
3. Tommy *Armour*
4. Jack *Nicklaus* (St.)
5. Bryron or Larry *Nelson*
6. Arnold *Palmer*
7. *Julius* Boros
8. *Lawson* Little
9. Walter Hagen (Haig & Haig)
10. Bobby *Jones* (Joneses)
11. Lou *Graham* (cracker)
12. Hubert *Green*
13. Andy *North* (Pole)
14. Orville *Moody*
15. Billy *Casper* (the ghost)
16. Tommy *Bolt*
17. Dick *Mayer*
18. Cary *Middle*coff
19. Gene *Littler*
20. *Hale* Irwin (hail)
21. *Willie Anderson*
22. *Jay* Hebert
23. *Chick* Evan ("chickadee")
24. *Francis* Ouimet
25. Ken *Venturi*
26. Gary *Player*
27. Sam *Parks*
28. Tom *Watson* (Holmes)
29. *Ben* Hogan (Big)
30. Jim *Barnes*
31. *Ray* Floyd (rays) or Ted Ray
32. Johnny *Miller*

ANSWERS

USGA Women's Open Winners Quiz

1. Amy *Alcott*
2. Pat *Bradley*
3. Sandra *Palmer*
4. Catherine *La Coste*
5. Fay *Crocker*
6. *Hollis* Stacy
7. Jan Stephenson
8. Kathy *Baker*
9. *Carol* Mann
10. *Mickey* Wright
11. Kathy Cornelius
12. *Betsy* Rawls
13. Patty *Berg*
14. *"Babe"* Zaharias
15. Donna *Caponi*

Appendix 20-F

PUTTING IT IN PERSPECTIVE

Golfers with a high degree of skill and success can develop an overblown sense of their own importance.

Helping put a golfer's achievements in perpective is this essay written in 1978 by Patrick Caton, *10 years of age,* from Bermuda.

"Dimples"

I was feeling rather embarrassed. Here I was, an adventurous golf ball sitting in a shop window with everyone staring at me. I would rather be knocked about a golf course than sit here doing nothing.

It was nearing my third day in the shop window when I was bought. I thought I would finally see a golf course. The buyer took me to his house and put me in a golf bag. I found another golf ball who told me that there was a golf tournament the next day. I then fell into contented sleep thinking that at last I would see a golf course.

At the tournament I was taken out of the bag and teed off with a mighty "Whack." I sailed down the fairway and landed with a thump on the grass. My owner came up and sailed me away again and again.

After the first few holes I was feeling sore. I was dirty and exhausted from those mighty "Whacks and Thumps." I wanted to rest but my owner wouldn't allow me. I just had to score hole after hole. As I neared the eighteenth hole, I felt that I was going to fall apart. I was not used to this rough treatment. With a last "Whack" — I landed within two inches from a ten-foot putt. My owner putted me into the hole and took me out again. The spectators cheered wildly, whistled and stomped their feet. When I looked around and saw this, I muttered slowly to myself, "I do all the work and he gets all the credit."

Editor's Note:
So, if any of us who teach or should those who enjoy our instruction, happen to temporarily master the game, remember — "Nothing is ever accomplished alone."

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The Tommy Armour Golf Company is proud to sponsor the production of the PGA of America Teaching Manual. It is a fitting tribute to our company's namesake, Tommy Armour, whose skill at teaching the game was unsurpassed.

Armour is probably best remembered today for his major championships and many tournament victories. But his accomplishments as a teacher knew no equal. He counted Lawson Little and Babe Didriksen Zäharias among the pupils who came from far and wide for his guidance.

It is said that during the Great Depression, when a cup of coffee cost a nickel, Armour gave golf lessions at Boca Raton for $50 each—and he had a six-month waiting list.

Although Armour never played the game of football, his keen eye for physical movement and his uncanny ability to correct flaws with just the right words once earned him an invitation to the New York Giants training camp to help coach the quarterbacks.

Perhaps his crowning achievement in teaching was his 1953 book, *How to Play Your Best Golf All the Time.* Still in print and among the best selling golf instruction works ever, the book was ghost-written by the immortal Herb Graffis, who used to chuckle about obtaining all the material "in three weeks in a bar in Mamaroneck, N.Y."

Tommy Armour was an uncommon man, well-educated, generous to a fault, quick-witted, entertaining, a leader and a true lover of the game of golf. In memory of his enormous teaching talent, we are pleased to make possible the distribution of this manual to all of the members of the PGA of America.

Robert F. MacNally
President
Tommy Armour Golf Company

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This PGA Teaching Manual is dedicated
to the memory of Tommy Armour

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